

ROYAL BOTANIC GARDENS, KEW.

BULLETIN
OF
MISCELLANEOUS INFORMATION.

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XLVII.—FUNGI EXOTICI: XXV. NOTES ON
UGANDA FUNGI.

II.—MICROFUNGI.

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The present contribution towards a fungus-flora of Uganda enumerates a number of fungi, chiefly micro-forms, which occur on cultivated and wild plants, many of them as parasites. The list is compiled from records which have accumulated during the past six years, from collections made by Messrs. Dummer, Small, Maitland, and Snowden. A feature of the list is the large number of Uredinales, and it should be mentioned that in addition to those named many uredo-forms have been received which it has not been possible to identify satisfactorily.

The species of *Colletotrichum* on various hosts are listed separately, but as remarked under *C. incarnatum* it is probable that further work will show that many of these are identical. I am indebted to Mr. W. Small for correcting names of localities, and reading proofs.

BASIDIOMYCETES.

Helicobasidium longisporum, Wakef. in *Kew Bull.* 1917, p. 310.

On root of young Cacao, Mvuba, Buganda, Small 463.

USTILAGINALES.

Ustilago Cynodontis, Bref. Untersuchungen, XII, p. 105; *U. segetum* var. *Cynodontis*, Henn. in Engl. Bot. Jahrb. XIV, 1891, p. 369.

Fairly common on *Cynodon Dactylon*, Kampala, Jan. 1915, Small 166.

U. Digitariae, Rabh. Fung. Eur. No. 1199.

Fairly common on *Digitaria horizontalis*, Willd. Kampala, Small 5.

U. heterospora, *P. Henn.* in Engler, Pflanzenwelt Ostaf. 1895, p. 48.

Tilletia Ayresii, Berk. ex Mass. in *Kew Bull.* 1899, p. 146.

On *Panicum maximum*, Victoria Nyanza region, T. D. Maitland, 1914; on *Setaria aurea*, Nagunga, Dec. 1916, *Dummer* 3052.

U. Schweinfurthiana, *Thuem.* in Mycoth. Univ. No. 726.

On *Imperata arundinacea*, near Nkoko, Dec. 1916, *Dummer* 3057.

U. tritici (*Pers.*) *Jens.* in Kell. & Sw., Rep. Kans. Agr. Exp. Sta. II, 1890, p. 262.

On Wheat, Walasi, Bugishu, J. D. Snowden 529.

Sphacelotheca Reiliana (*Kühn*) *Clinton* in Journ. of Mycol. VIII, 1902, p. 141.

On Millet, S.E. Bugishu, foot-hills of Mount Elgon, *Small* 165.

S. Sorghi (*Link*) *Clinton* in Journ. of Mycol. VIII, 1902, p. 140.

On *Sorghum* sp., Kipayo, Nov. 1914, *Dummer* 1324.

Cintractia axicola (*Berk.*) *Cornu* in Ann. Sci. Nat. VI, 15, 1883, p. 279.

On a Cyperaceous plant, Kijude, *Dummer* 2516.

Tolyposporium philippinense, *Syd.* in Ann. Myc. X, 1912, p. 78.

On *Hyparrhenia cymbaria*, Stapf (= *Andropogon Cymbarius*, L.), Nagoge, Oct. 1916, *Dummer* 3011.

Schroeteria Cissi (*DC.*) *de Toni* in Sacc. Syll. VII, p. 501. Kiserema, Nov. 1913, *Dummer* 617.

UREDINALES.

Uromyces Bidentis, *Lagerh.* in Bull. Soc. Myc. Fr. XI, 1895, p. 213.

On *Bidens pilosa*, Kipayo, *Dummer* 1101.

U. Melantherae, *Cooke* in Grevillea, X, 1882, p. 127.

On *Melanthera Brownei*, Kipayo, *Dummer* 920; on *Melanthera*, Namanyonyi, Dec. 1915, *Dummer* 2753.

U. Ipomaeae (*Thuem.*) *Berk.* in Grevillea XI, 1882, p. 19.

On Convolvulaceae, Gegede, July 1916, *Dummer* 2874.

U. Secamones, *Wakef.* in *Kew Bull.* 1917, p. 311.

On *Secamone platystigma*, Namanyonyi, Oct. 1916, *Dummer* 3012.

Uromyces Hyperici-frondosi (*Schw.*) *Arth.* in Bull. Minnes. Acad. Nat. Sci., XI, 1883, p. 15.

On *Hypericum Lalandii*, Kiserema, Nov. 1916, *Dummer* 3017.

U. Polygalae, *Grove* in *Kew Bull.* 1916, p. 269.

On *Polygala* sp. Kipayo, *Dummer* 2324.

U. appendiculatus (*Pers.*) *Link*, Observ. II, 1816, p. 28.

On *Vigna sinensis*, Kamuli, 1913, *Small* 1; on *Phaseolus Munga*, Kipayo, *Dummer* 1121.

U. striatus, *Schroet.* Abhandl. Schles. Ges. f. vaterl. Cultur, 1869-72, p. 11.

On cultivated Lucerne, Mulange, Jan. 1920, *Dummer* 4420.

- U. Hypoxydis**, *Cooke* in *Grevillea* X, 1882, p. 127.
 On *Hypoxis* sp., *Kijude*, *Dummer* 2508.
- U. Aloës** (*Cooke*) *Magn.* in *Ber. deutsch. bot. Ges.* X, 1892, p. 48.
U. aloicola, *P. Henn.* in *Engl. Bot. Jahrb.* XIV, 1891, p. 370.
 On *Aloë* sp., *Kipayo*, June 1914, *Dummer* 903.
- U. Commelinae**, *Cooke* in *Trans. Roy. Soc. Edinb.*, 1887, p. 342.
 On *Commelina* sp., *Kiwafu* *Dummer* 919; *Mabira Forest*, near *Mubango*, *Dummer* 1331; *Kirerema*, *Dummer* 164.
- U. Cyathulae**, *P. Henn.* in *Bull. Herb. Boiss.*, I, 1893, p. 107, and *Sydow* in *Ann. Myc.* V, 1907, p. 491.
 On *Cyathula globifera*, *Moquin*, *Kipayo*, Sept. 1914, *Dummer* 1109.
- Puccinia Berkheyae**, *Wakef.* in *Kew Bull.* 1917, p. 312.
 On *Berkheya Spekeana*, *Namanyonyi*, *Dummer* 2752.
- P. Coreopsidis**, *Wakef.* in *Kew Bull.* 1918, p. 209.
 On *Coreopsis* sp., *Kipayo*, Sept. 1914, *Dummer* 1113.
- P. Kalchbrenneri**, *De Toni* in *Sacc. Syll.* VII, p. 645.
 On *Helichrysum* sp., *Kipayo*, Nov. 1914, *Dummer* 1192; on *Helichrysum undulatum*, *Lumbwa*, May 1917, *Dummer* 3233.
- P. Le-Testui**, *Mauubl.* in *Bull. Soc. Myc. Fr.* XXXII, 1906, p. 71.
 On *Vernonia* sp., near *Nkoko*, July 1916, *Dummer* 2858.
- P. pulvinata**, *Rabh.* in *Hedwigia*, 1871, p. 20.
 On *Echinops amplexicaulis*, *Lumbwa*, Oct. 1916, *Dummer* 3008.
- P. holosericea**, *Cooke* in *Grevillea* X, 1882, p. 126.
 On *Convolvulaceae*, *Kivuvu*, Dec. 1914, *Dummer* 1319.
- P. lateritia**, *Berk. & Curt.* in *Journ. Acad. Nat. Sci. Philadelphia*, New Ser. II, 1853, p. 281.
 On *Spermacoce Ruelliae*, *DC.*, *Kipayo*, Dec. 1913, *Dummer* 616; on *Spermacoce* sp., *Kirerema*, *Dummer* 1470.
- P. Oldenlandiae**, *P. Henn.* in *Engl. Bot. Jahrb.*, XV, 1892, *Beibl.* 33, p. 5.
 On *Oldenlandia* sp., *Kipayo*, Jan. 1915, *Dummer* 1359.
- P. pentadicola**, *Grove* in *Kew Bull.* 1916, p. 271.
 On *Pentas verticillata* var. *pubescens*, *S. Moore*, *Mubango*, *Dummer* 1344.
- P. Pentadis-carneae**, *Wakef.* in *Kew Bull.* 1916, p. 74.
 On *Pentas carnea*, *Kipayo*, Oct. 1914, *Dummer* 1123.
- P. Thunbergiae-alatae**, *P. Henn.* in *Engler, Pflanzenwelt Ostaf.*, 1895, p. 50.
 Uredo-stage on *Thunbergia alata*, *Namanyonyi*, Jan. 1916, *Dummer* 2739.
- P. Hoslundiae**, *Syd.*, *Deutsch. Zentr.-Afr. Exped.* 1907-08, II Band, p. 96; *P. Hoslundiae*, *Grove* in *Kew Bull.* 1916, p. 270.
 On *Hoslundia* sp., *Magigye*, *Dummer* 1312.
- This is the type material of *Grove's* species, but comparison with *Sydow's* description leaves no doubt that the names are synonymous. *Grove* states that the apex of the teleutospores is not thickened, but re-examination of the material shows that it

is sometimes slightly thickened, and this removes the only essential difference in the descriptions by the two authors.

P. leonotidicola, *P. Henn.* in *Bot. Ergeb. der Kunene-Sambesi Exped.* 1902, p. 3.

On *Leonotis* sp., Kipayo, Sept. 1914, *Dummer* 1108.

P. natalensis, *Diet. & Syd.*, in *Hedwigia* 1899, p. 130.

On *Lantana trifolia*, L., Kipayo, Nov. 1914, *Dummer* 1191.

P. accedens, *Syd.*, *Monogr. Ured.* I, 1902, p. 309.

On *Lippia arvensis*, Kipayo, Dec. 1914, *Dummer* 2301.

The mesospores are less numerous than is described in the Brazilian type.

P. necopina, *Grove* in *Kew Bull.* 1916, p. 271.

On *Tristemma* sp., Kipayo, *Dummer* 2325.

Puccinia Gouaniae, *Holway* in *Ann. Myc.* III, 1905, p. 21.

Uredo stage only, on *Gouania* sp., Kipayo, Jan. 1915, *Dummer* 1340.

P. aequalis, *P. Henn.* in *Engler, Pflanzenwelt Ostaf.*, 1895, p. 50.

On *Antidesma venosum*, Kipayo, Jan. 1915, *Dummer* 2504.

P. Abutili, *Berk. & Br.*, in *Journ. Linn. Soc.* XIV, 1873, p. 91.

On *Malvaceae*, Kipayo, Nov. 1914, *Dummer* 1304.

P. heterospora, *Berk. & Curt.* in *Journ. Linn. Soc.*, X, 1868, p. 356.

On *Abutilon* sp., Kipayo, May 1914, *Dummer* 647; on *Sida rhombifolia*, Namilyango, *Dummer* 1488; on *Sida* sp., Lake shore Entebbe, Mar. 1918, *Maitland* 253.

P. exilis, *Syd.*, *Monogr. I*, p. 481, var. **Hibisci**, *Grove* in *Kew Bull.* 1916, p. 270.

On *Hibiscus* sp., Kirerema, *Dummer* 2326.

P. leptosperma, *Syd.*, *Monogr. Ured.* I, 1903, p. 557.

On *Drymaria cordata*, Kivuvu, Dec. 1915, *Dummer* 2740.

P. Kraussiana, *Cooke* in *Grevillea* X, 1882, p. 126.

On *Smilax Kraussiana*, Kivuvu, *Dummer* 1116.

P. cymbopogonis, *Mass.* in *Kew Bull.* 1911, p. 224.

On *Cymbopogon citratus*, Kampala, *Small* 7; the type material of this species was from Entebbe.

P. graminis, *Pers.*, *Disp. Meth. Fung.*, 1797, p. 39, and *Syn.* 1801, p. 228.

On native-grown wheat, Toro, *Small* 28; on wheat, Wazikonya's, Bugishu, *Snowden* 527.

P. triticina, *Eriks.* in *Ann. Sci. Nat.*, Sér. 8, IX, 1899, p. 270.

On wheat, Kampala plantation, June 1920, *Snowden* 662.

P. Sorghi, *Schw.*, *Syn. Fung. Amer. Bor.*, 1834, p. 295; *P. Maydis*, *Bereng.*, in *Atti VI Ruin.*, sc. ital. Milano, 1844, p. 475.

On cultivated maize, Mulange Estate, June 1919, *Dummer* 4163.

Pucciniosira Dissotidis, *Wakef.* in *Kew Bull.* 1917, p. 313.

On *Dissotis* or *Osbeckia* sp., Namanyonyi, July 1916, *Dummer* 2865; on *Dissotis incana*, Kipayo, *Dummer* 2157 (*Aecidium*).

Ravenelia minima, *Cooke* in *Grevillea* X, 1882, p. 128.

On *Albizzia Brownei*, Kipayo, Sept. 1914, *Dummer* 1107.

Hamasporea longissima (*Thuem.*) *Koern.* in *Hedwigia* XVI, 1877, p. 23.

On *Rubus* sp., Mubango, Jan. 1915, *Dummer* 1343.

Hemileia Dioscoreae-aculeatae, *Rac.*, *Crypt. paras. Jav. Exs.*, No. 37. *Uredo Dioscoreae-aculeatae*, *Rac.*, *Paras. Alg. u. Pilze Javas* I, 1900, p. 30.

On *Dioscorea*, Kirerema, Nov. 1913, *Dummer* 619.

H. Scholzii (*P. Henn.*) *Syd.* in *Engl. Bot. Jahrb.* 45, 1910, p. 260.

On under surface of leaves of *Clerodendron*, Namanyonyi, *Dummer* 2751; Botanic Gardens, Entebbe, *Maitland* 229 partly; Kampala, *Small* 415.

H. vastatrix, *Berk. & Br.* in *Gard. Chron.* 1869, p. 1157.

On native and cultivated coffee, Kampala, *W. Small*.

Uredo mkusiensis, *P. Henn.* in *Engl. Bot. Jahrb.* 34, 1904, p. 41.

On *Psychotria* sp., Mulange, Mar. 1920, *Dummer* 4424.

This species is probably the uredo-stage of a *Hemileia*.

U. Pycnostachydis, *Kalchbr.* in *Grevillea* XI, 1882, p. 25.

On *Pycnostachys Darwei*, N.E. Br., Mugomba, May 1914, *Dummer* 648.

U. Gossypii, *Lagerh.*, in *Journ. of Mycol.* VII, 1891, p. 48.

On cultivated cotton, native garden, Kipayo, *Dummer* 2183.

U. Erythrinae, *P. Henn.* in *Ann. Mus. du Congo*, II, fasc. 3, 1908, p. 224.

On *Erythrina tomentosa*, Nov. 1914, Kipayo, *Dummer* 1311.

U. Zorniae, *Diet.* in *Hedwigia* 38, 1899, p. 257.

U. Zorniae, *Berk. ex Cooke* in *Grevillea* XX, 1892, p. 110 (*nomen nudum*).

On *Zornia* sp., Lumbwa, Sept. 1916, *Dummer* 3007.

U. Achyranthis, *P. Henn.* in *Engler, Pflanzenwelt Ostaf.* p. 51.

On *Achyranthes* sp., Kipayo, Jan. 1914, *Dummer* 1332.

U. Fici, *Cast.*, *Cat. Pl. Marseill.* II, p. 87.

On leaves of *Ficus* sp., Kipayo, Jan. 1915, *Dummer* 1334; Lumbwa, July 1916, *Dummer* 2870.

U. Dioscoreae, *P. Henn.* in *Hedwigia*, 1896, p. 255.

On *Dioscorea* sp., Lumbwa, June-July, 1916, *Dummer* 2856.

U. cypericola, *P. Henn.* in *Engler, Pflanzenwelt Ostaf.*, p. 52.

On *Mariscus* sp., and *Mariscus Sieberianus* Nees, Kipayo, Oct. 1914, *Dummer* 1120, 1152.

U. digitariaecola, *Thuem.*, *Mycoth. Univ.* No. 2041.

On *Digitaria* sp., Kipayo, Aug. 1914, *Dummer* 949; on *D. digitata*, *Stapf*, Terinyi, Bukedi, Oct. 1917, *Snowden* 536.

Aecidium Vangueriae, *Cooke* in *Grevillea* X, 1882 p. 124.

On leaves of a Rubiaceae shrub, Bupoto, Bugishu, Nov. 1916, *J. D. Snowden* 490; on *Vangueria* sp., Bulago, Mount Elgon, July, 1917, *Snowden* 521.

A. flavidum, *Berk. et Br.* in *Journ. Linn. Soc.* XIV, 1873, p. 95.

On *Pavetta* sp., Mbarara, near Kivuyu, *Dummer* 3250.

A. acanthacearum, Cooke in Grevillea X, 1882, p. 124.

On *Justicia uncinulata*, Oliv. var. *tenuicarpa*, C.B. Cl., *Small* 18; Kipayo, *Dummer* 649; on *Justicia* sp., *Small* 19; Kipayo, *Dummer* 900, 902.

A. Leonotidis, P. Henn. in Engler, *Pflanzenwelt Ostaf.*, 1895, p. 52.

On *Leonotis* sp., Magigye, *Dummer* 1482.

A. Phyllanthi, P. Henn. in Engl. Bot. Jahrb., XV, 1892, Beibl. 33, p. 6.

On *Phyllanthus* sp.; Mulange, April 1919, *Dummer* 4022; Namanyonyi, Dec. 1916, *Dummer* 3055.

The spores in these specimens average rather smaller than those of the type form.

A. erythrobasis, Berk. & Br., in Journ. Linn. Soc., XIV, 1873, p. 94.

On cultivated *Hibiscus* sp., Mugomba, Jan. 1915, *Dummer* 1346.

A. Glycines, P. Henn. in Engler, *Pflanzenwelt Ostaf.*, 1895, p. 52.

On *Glycine javanica*, Kipayo, Aug. 1914, *Dummer* 926; *Dummer* 1193.

A. Crotalariae, P. Henn. in Engler, *Pflanzenwelt Ostaf.*, 1895, p. 52.

On *Crotalaria* sp., Kampala, May 1915, *Small* 330.

A. Vignae, Cooke in Grevillea VIII, 1879, p. 71.

On *Pueraria phaseoloides*, *Vigna sinensis*, and *Vigna Catjang*, all imported from Java, Kampala plantation, *Small* 127, 128, 171 partly; on *Vigna* sp., *Small* 250 partly.

A. cookeanum, De Toni, in Sacc. Syll. Fung. VII, p. 822.

A. Loranthei, Cooke in Grevillea XIV, p. 13.

On *Viscum* sp., Kangage Forest, Mar. 1915, *Maitland* 122.

PERISPORIALES.

Erysiphe Polygoni, DC., Fl. Fr. 2, 1805, p. 273.

On *Tephrosia paniculata*, Kipayo, *Dummer* 924; on *Vigna?*, Kipayo, *Dummer* 1105; on *Pisum sativum*, Mulange, Jan. 1920, *Dummer* 4417.

Eurotium herbariorum (Wigg.) Link. Spec. Plant. I, p. 79.

Ascigerous stage on leaves, *Small* 124.

Meliola clavulata, Wint. in Hedwigia 25, 1886, p. 98.

On *Convolvulaceae*, Magigye, *Dummer* 1483.

M. Molleriana, Wint. in Hedwigia 25, 1886, p. 98.

On *Hibiscus* sp., Kirerema, *Dummer* 1471.

M. bicornis, Wint. in Hedwigia 25, 1886, p. 99.

On *Glycine javanica*, Kipayo, *Dummer* 918; Kampala, *Small* 123; on *Teramnus labialis*, Lumbwa, July 1916, *Dummer* 2869.

M. clerodendricola, P. Henn. in Hedwigia 37, 1898, p. 288.

On leaves of *Clerodendron*, Botanic Garden, Entebbe, *Maitland* 229 partly, *Small* 461; on *Clerodendron capitatum*, Entebbe, 1919, *Maitland* 271.

M. Melastomacearum, Speg., Fung. Puigg. 1889, p. 116.

On *Dissotis* sp., Kipayo, Sept. 1914, *Dummer* 1103.

M. palmicola, Wint. in Hedwigia 26, 1887, p. 31.
On dead *Phoenix reclinata* pinnae, Kipayo, Aug. 1914, Dummer 916.

M. Pazschkeana, Gaill., Le Genre Meliola, 1892, p. 95.
On *Markhamia platycalyx*, Nagunga, Sept. 1914, Dummer 1112.

This form agrees with Gaillard's description, except that it has somewhat smaller spores than the type.

M. stenospora, Wint. in Hedwigia 25, 1886, p. 97.
On *Convolvulaceae*, Kirerema, Dummer 618; on *Piper* sp., Kipayo, Dummer 2168.

Parodiella melioloides (B. & C.) Wint. in Hedwigia 24, 1885, pp. 108, 257; Pat. in Bull. Soc. Myc. Fr., 8, 1892, p. 129.

On leaves of an unnamed plant, Dummer 159, 1117.

There is no doubt that *Exosporium lateritium*, Syd., described in Ann. Myc. XI, 1913, p. 407, represents the conidial stage of this plant. These specimens contained mostly conidia, but a few perithecia were found intermixed. The conidial stage was figured by Patouillard.

P. perisporoides (B. & C.) Speg., Fung. Arg., Pug. I, 1880, p. 178.

Common on various *Leguminosae*. On *Crotalaria* sp., Kipayo, Dummer 1124; on *Indigofera subulata*, Namilyango, Dummer 1491; on unnamed legume, Dummer 1490; on *Vigna* sp., Kipayo, Dummer 1306; on *Tephrosia linearis*, Namanyonyi, Dummer 2749.

Corynelia uberata, Fr., Syst. Myc. II, p. 535.

On leaves of seedling *Podocarpus nulangianus*, Entebbe, June 1917, Maitland 228.

SPHAERIALES.

Ceratosphaeria lampadophora (B. & Br.) Niessl. in Verh. naturforsch. Ver. Brum, XIV, 1876, p. 43.

Associated with *Hypoxylon* sp., Wakigu Forest, Feb. 1915, Maitland 95.

Eutypella corynostoma (B. & Rav.) Sacc., Syll. I, p. 156.

On dead branch of *Albizzia moluccana*, Kampala, June 1915, Maitland 199.

Mycosphaerella conferta (Speg.) Wakef. Comb. Nov.

Sphaerella conferta Speg., Fung. Guar. Pug. I, 1883, p. 88.

On *Allophylus* sp., Mulange, Jan. 1920, Dummer 4416.

Mycosphaerella depazeaeformis (Ces. & de Not.) Wakef. Comb. Nov.

Sphaerella depazeaeformis Ces. & De Not. Schem. Sfer. ital. in Comm. Soc. Critt. ital. I, part 4, 1863, p. 64.

On *Oxalis corniculata*, forma, Kipayo, Jan. 1915, Dummer 1333.

Mycosphaerella Erythrinae, Koord., Bot. Unters. 1907, p. 189.

Common on *Erythrina tomentosa*, Kampala, Oct. 1914, Small 167.

Leptosphaeria Protearum, Syd., in Ann. Myc. X, 1912, p. 441.

On *Protea madiensis*, Lumbwa, July 1916, Dummer 2863.

L. Sacchari, v. *Breda*, in *Meded. v. Het. Proefstat. v. Suikerr.* in West Java, 1892, p. 25.

On sugar-cane, common, *Small* 13.

Gibberidea Zingiberacearum, *Rac.* in *Bull. Ac. Sc. Cracovie*, 1909, p. 385.

On leaves of *Amomum* sp., Entebbe, *Maitland* 270.

Engleromyces Goetzei, *Henn.* in *Engl. Bot. Jahrb.* XXVIII, 1900, p. 327; *Colletomanginia paradoxa*, *Pat.* in *Bull. Soc. Myc. Fr.* Bamboo-zone, Mount Elgon, Dummer-MacLennan *Exped.* Jan. 1918, No. 3448.

This extraordinary plant has been received at Kew previously from the Aberdare Mountains, British East Africa, also on Bamboo. This is the first record from Uganda.

Rosellinia asperata, *Mass. ex Wakef.* in *Kew Bull.* 1918, p. 209.

On wood, Kampala, *Small* 315.

Ustulina vulgaris, *Tul.*, *Sel. Fung. Carp.* II, p. 23.

On dead stump of *Phoenix reclinata*, *Maitland* 306; *Dummer* 629.

U. zonata (*Lév.*) *Sacc.*, *Syll. Fung.* I, p. 352.

Mount Elgon, Dec. 1914, *Small* 136, 215; Namampe, May 1915, *Maitland* 192; Kipayo, *Dummer* 1453.

DOTHIDEALES.

Auerswaldia examinans (*Mont. & Berk.*) *Sacc.*, *Syll.* II, p. 626.

Mount Elgon, Dec. 1914, *Small* 135.

Dothidina disciformis, *Theiss. & Syd.* in *Ann. Myc.* XIII, 1915, p. 304; *Auerswaldia disciformis*, *Wint.*

On *Myrica* sp., Gegede, Mar. 1916, *Dummer* 2832.

Catacauma repens (*Cd.*) *Theiss. & Syd.* in *Ann. Myc.* XIII, 1915, p. 383.

Phyllachora repens (*Cd.*) *Sacc.*, *Syll.* II, p. 597.

On *Ficus* sp., Kipayo, Aug. 1914, *Dummer* 917.

C. ulcerata (*Mass.*) *Theiss. & Syd.* in *Ann. Myc.* XIII, 1915, p. 399.

Phyllachora ulcerata, *Mass.*

On *Ficus ovata*, *Vahl.*, leaves, Kampala, *Small* 17.

Phyllachora Desmodii, *P. Henn.* in *Engler, Pflanzenwelt Ostaf.* 1895, p. 34.

On *Desmodium* sp., Lumbwa, Mar.-April, 1916, *Dummer* 2841.

P. graminis (*Pers.*) *Fckl.*, *Symb. Myc.* p. 216.

On *Panicum* sp., Naminyama Hill, July 1916, *Dummer* 2889.

HYPOCREALES.

Nectria flavo-lanata, *Berk. & Br.* in *Journ. Linn. Soc.* XIV, 1873, p. 114.

On dead Cacao stem, Mabira Forest Plantation, Chagwe, July 1917, *Maitland* 227.

N. flavo-lanata resembles *N. tjiibodensis*, *Penz. & Sacc.* in habit, but has broader (5-6 μ) and distinctly striate spores. Mixed with

the normal form in this material is a variety with spores $20-24 \times 7-8 \mu$.

Petch has pointed out (Ann. Roy. Bot. Gard., Peradeniya, VII, 2, 1920, p. 103), that the spores of this species are subject to considerable variation. He thinks it probable that *N. flocculenta*, v. Hoehn., which only differs in the smaller spores, may be referred here. As the striation of the spores may also vary, it seems possible that *N. tjibodensis* may eventually be found to be also a form of the same species.

Nectria stigme, *Rehm* in *Hedwigia* XLIV, 1904, p. 2.

On *Ustulina zonata*, Kipayo, *Dummer* 629.

The spores of this specimen are slightly longer than those described, $5-8 \times 4 \mu$.

N. Rickii, *Rehm* in *Hedwigia* XLIV, 1904, p. 2.

On *Hypoxyton* sp. on a tree-trunk serving as a bridge, Kisubi Forest, Aug. 1918, *Maitland* 310.

Spores $12 \times 6-7 \mu$. In Saccardo's *Sylloge* Vol. XVII, p. 796 the descriptions of this and of the preceding species are transposed. In both the spores are brownish and warted when mature, but those of *N. Rickii* are larger. Probably they are merely forms of one species.

Calonectria guarapiensis, *Speg.*, *Fung. Guar.*, Pug. I, 1883, p. 102.

On *Acalypha fruticosa*, Sai, Jan. 1915, *Dummer* 1336.

Megalonectria pseudotrichia, *Speg.*, *Fung. Arg.*, Pug. IV, 1880, p. 82.

Common. Kipayo, *Dummer* 641, 1144; Kampala, *Small* 4, 292; Nakinyika Forest, *Maitland* 144; Namampe Forest, *Maitland* 188.

PHYCOMYCETES.

Rhizopus stolonifer (*Ehrenb.*) *Lind.*, *Danish Fungi*, 1913, p. 72.

On an *Asclepiad*, Kipayo, Nov. 1914, *Dummer* 1199.

SPHAEROPSIDAE.

Phyllosticta Crotalariae, *Sacc.*, *Syll.* XXII, p. 1291.

The conidial stage of *Sphaerella Crotalariae*, Petch? See Petch in Ann. Roy. Bot. Gard. Peradeniya III. 1906, p. 2.

On *Crotalaria* sp., Kampala, May 1915, *Small* 329.

Phoma Heveae, *Petch* in Ann. Roy. Bot. Gard. Peradeniya, III, 1906, p. 5.

On dead twigs of *Hevea brasiliensis*, Kampala, 1913, *Small* 3.

Ascochyta phascelorum, *Sacc.* in *Michelia* I, p. 164.

On leaves of *Vigna Catjang* imported from Java, and on *Vigna* sp., associated with *Aecidium Vignae*, Cooke, Kampala, *Small* 171, 250 partly.

Darlucia Filum (*Biv.*) *Cast.*, *Cat. Pl. Marseill.* Sup. p. 53.

On *Imperata arundinacea*, Masindi, *J. D. Snowden*, 530.

Aschersonia Zenkeri, *P. Henn.* in *Engl. Bot. Jahrb.* XXIII, p. 541.

On *Fluggea microcarpa*, Nagoge, Jan. 1917, *Dummer* 3061 partly.

A. crenulata, Pat. & Hér. in Journ. de Bot. XIV, 1900, p. 244.

A. tephrosiicola, P. Henn. in Ann. Mus. Congo II, fasc. 3, 1908, p. 228.

On *Fluggea microcarpa*, Nagoge, Jan. 1917, Dummer 3061 party.

Associated with the preceding species on the same leaves.

Septoria Chenopodii, West. in Bull. Acad. Sc. Bruxelles, XVIII, 1851, p. 396.

On cultivated *Chenopodium album*, Mulange, Feb. 1919, Dummer 3943. The spores are a little smaller than those of the European form.

S. Coffeae, Wakef. in Kew Bull. 1918, p. 210.

On leaves of coffee injured by hail, Kampala, Small 480.

S. nesodes, Kalchbr. in Grevillea IX, 1880, p. 20.

On *Hydrocotyle asiatica*, Kipayo, Dummer 1338, 1478.

Botryodiplodia Theobromae, Pat. in Bull. Soc. Myc. Fr., VIII, 1892, p. 136.

On fruits of a palm (*Raphia* sp.?), Wallasi, Bugishu, Oct. 1916, J. D. Snowden, 478, 482; on petiole of palm leaf, Kitibulu Forest, Dec. 1918, Maitland 392.

The specimens on palm fruits are the strongly-marked *Lasiodiplodia* form. Exactly the same form has been received from the Portuguese Congo on fruits of *Sclerospora Mannii*.

Hendersonia Protearum, Wakef. in Kew Bull. 1918, p. 210.

On leaves of *Protea madiensis*, Oliv., Lumbwa, July 1916, Dummer 2866.

Colletotrichum gloeosporioides (Penz.) Sacc., Syll. III, p. 735.

On lemon leaves and twigs, Kampala, T. D. Maitland.

C. Camelliae, Mass. in Kew Bull. 1899, p. 91.

On leaves, twigs and seed-vessels of tea, Kampala, T. D. Maitland.

C. coffeanum, Noack in Zeitschr. f. Pflanzenkr., 1901, p. 202.

On twigs, leaves and berries of *Coffea arabica*, *C. robusta*, and *Coffea* sp., Kampala, Maitland; on coffee twigs, Toro, Small 532. Pure cultures of this species produce a *Glomerella* which is indistinguishable from *G. cingulata*, S. & v. Schr.

C. incarnatum, Zimm. in Centralbl. f. Bakt. u. Paras. 1901, p. 143.

On cocoa pods, causing hardening, Kampala, Small 481.

This species is supposed to be characterised by a blue coloration of the basal tissue when treated with iodine. In the present case this reaction was found to be not at all constant, and it is very probable that this and the following species are identical. Moreover, Small has found that *Colletotrichum coffeanum* from coffee will infect cocoa, and conversely. It seems probable that all these *Colletotrichums* of tropical economic plants may be forms of the ubiquitous *Glomerella cingulata*.

Colletotrichum theobromicola, Del. in Bull. Soc. Myc. Fr., XXI, 1905, p. 191.

On stems of Cacao, Kampala, Maitland.

HYPHOMYCETES.

- Beniowskia Penniseti**, Wakef. in *Kew Bull.* 1916, p. 75.
On *Pennisetum purpureum*, Schum., and *Sorghum vulgare*, *Small* 251.
- Cercospora Gossypii**, Speg., *Fung. Guar.*, Pug. I, 1883, p. 162.
On cultivated cotton, native garden, Kipayo, *Dummer* 1335.
- Periconia byssoides**, Pers., *Syn. Fung.* p. 686.
On coffee twigs, *Small* 29 partly, 31.
- Helminthosporium Ravenelii**, Curt. in *Grevillea* III, 1875, p. 102.
On *Eragrostis* sp., Lumbwa, Oct. 1916, *Dummer* 3005.
- Cercospora personata** (B. & C.) Ell. in *Journ. of Mycol.* I, 1885, p. 63.
Septogloeum Arachidis, Rac. in *Zeitschr. für Pflanzenkr.* 1898, p. 66.
On cultivated ground-nut, Kipayo, 1914, *Dummer* 1301; on cultivated *Cassia corymbosa*, Mukono, 1914, *Dummer* 1302.
- C. sapiicola**, Speg., *Myc. Arg.* V, p. 442, in *Ann. Mus. Nac. Buenos Aires* XX, 1910.
On *Sapium Mannianum*, Mulange, Jan. 1920, *Dummer* 4413.
- C. cannabina**, Wakef. in *Kew Bull.* 1917, p. 314.
On cultivated Indian Hemp, Kipayo, Dec. 1914, *Dummer* 1320.
- C. Cearae**, Petch in *Ann. Roy. Bot. Gar. Peradeniya*, III, 1906, p. 10.
On cultivated Ceara rubber, Kipayo, *Dummer* 1495.
- C. Henningsii**, Allesch. ex P. Henn. in *Engler, Pflanzenwelt Ostafri.*, I, p. 35.
Common on *Manihot utilissima*, Kampala, Oct. 1914, *Small* 170; Kipayo, Jan. 1915, *Dummer* 1348.
- Cercospora coffeicola**, Berk. & Cooke in *Grevillea* IX, 1881, p. 99.
On leaves of *Coffea stenophylla* and *Coffea* sp., Kampala, *Small* 322, 323, and 332; on nursery seedlings of coffee, Kampala, *Maitland*.
- C. Chevalieri**, Sacc. *Syll.* XXII, p. 1431.
C. Amorphophalli, Pat. & Har. in *Bull. Soc. Myc. Fr.* XXIV, 1908, p. 15.
On *Amorphophallus* sp. Namanyonyi, July 1916, *Dummer* 2879.
- C. Raciborskii**, Sacc. & Syd., *Syll.* XVI, p. 1070.
On native-grown tobacco, Kampala, *Small* 15.
- Macrosporium Brassicae**, Berk. in *Smith, Engl. Flor.* V, p. 338.
On leaves of cabbage, Kampala, *Small* 324; Kipayo, *Dummer* 1499.
- M. Solani**, Ell. & Mart. in *Amer. Nat.* 1882, p. 1003.
On *Datura Stramonium*, Kampala, Oct. 1914, *Small* 173.
- Tubercularia versicolor**, Sacc. *Fung. ital. tab.* 961.
On the healing surface of tapped *Hevea*, Mubango, Dec. 1916, *J. D. Snowden*, 489.

The spores average slightly broader than those of the European form.

Tuberculina persicina (*Ditm.*) *Sacc.*, *Fung. ital. tab.* 964.

On *Cissus Afzelii*, with *Aecidium* sp., Kirerema, *Dummer* 2747.

Fusarium coffeicola, *P. Henn.* in *Engl. Bot. Jahrb.* XXII, 1895, p. 82.

On coffee twigs, Kampala, *Small* 29 partly.

F. heterosporum, *Nees*, in *Nov. Act. Cur.* IX, 1818, p. 235.

On *Panicum maximum*, common, Kampala, *Small* 8, 174; Kipayo, *Dummer* 1468.

Epicoccum vulgare, *Cd.*, *Icon. Fung.* I, p. 5.

Kipayo, *Dummer* 608.

STERILE MYCELIA.

Sclerotium Rolfsii, *Sacc.*

Associated with a wilt of Carnations, Kampala, May 1919, *Small* 534.

XLVIII.—CONTRIBUTIONS TO THE FLORA OF SIAM.

ADDITAMENTUM XI.

W. G. CRAIB.

Buettneria siamensis, *Craib* [Sterculiaceae-Buettnerieae]; species nova foliis haud lobatis, sepalis facie neutra glabris, petalorum appendicibus glabris, corona dorso haud rostrata cognoscenda.

Caules lignosi, volubiles, primo pilis stellatis brevibus ferrugineis sat dense instructi, mox puberuli, cortice brunneo vel rubro-brunneo tenuiter longitudinaliter striato obteeti. *Folia* ovata vel elliptico-ovata, rarius rotundato-ovata, apice caudato-acuminata, basi cordata, ad 20 cm. longa et 14 cm. lata, chartacea, supra ad costam nervosque laterales parce pubescentia, infra puberula nisi in nervorum axillis pilosa, e basi 7-nervia nervis duobus infimis intramarginalibus tenuioribus et brevioribus, nervis lateralibus (e costa ortis) utrinque 6, nervis omnibus supra conspicuis subtus prominentibus, nervis transversis numerosis supra conspicuis subtus prominulis, nervulis rete supra mox sat conspicuum efficientibus, margine integra, petiolo ad 11.5 cm. longo apice et basi incrassato subterete pilis stellatis brevibus parce vel subdense instructo striatulo suffulta, pulvino in ramulis brevibus valde prominente; stipulae cito deciduae, lineari-lanceolatae, pubescentes, circa 7 mm. longae. *Inflorescentia* axillaris, pedunculo communi circa 2.5 cm. longo suffulta, multiflora, pedicellis ad 8 mm. longis cum alabastris dense breviter griseo-puberulis. *Calyx* vix ad basem in segmenta 5 late lanceolata apicem versus gradatim angustata acuta 4.5 mm. longa 1.75 mm. lata divisus. *Petala* glaberrima (ex *Kerr*), 2 mm. longa, appendice 3.5 mm. longa glabra instructa. *Antherae* filamentis brevibus suffultae.

Doi Sutep, 900 m., evergreen jungle, *Kerr* 3252.

Columbia Winitii, *Craib* [Tiliaceae-Grewieae]; ab affini *C. flagrocarpa*, C. B. Clarke, calycis indumento brevior inter alia distinguenda.

Arbor parva (ex *Winit*); ramuli iuventute densius pubescentes praetereaue pilis longis divaricatis sat numerosis conspicue instructi. *Folia* oblonga, apice caudato-acuminata, basi inaequaliter cordata, in ramulis floriferis ad 16 cm. longa et 8 cm. lata, alia 32 cm. longa et 15 cm. lata, chartacea, pilis stellatis supra parce subtus densius instructa, e basi 5-7-nervia, nervis supra conspicuis subtus prominentibus, nervis e costae parte superiore utrinque circa 5, nervis transversis inter se parallelis subtus prominulis, nervulis reticulationem gracilem subtus conspicuam efficientibus, margine denticulata et saepe apicem versus lobulata, ciliata, petiolo 5-24 mm. longo apice incrassato suffulta; stipulae reflexae, circa 6 mm. longae et 2.5 mm. latae, pubescentes, cito deciduae. *Inflorescentia* supra-axillaris et terminalis, foliis plus minusve dimidio brevior, e cymis racemosim dispositis constituta, pedicellis circa 4 mm. longis, bracteis deciduis. *Sepala* 5, oblongo-lanceolata, acuta, 5.5 mm. longa, 2 mm. lata, extra pubescentia, intra superne parce pubescentia. *Petala* oblanceolato-spatulata, 6.5 mm. longa, 1.5 mm. lata, basem versus ciliata, intra basi pilosa et glandula elevata orbiculari circa 0.5 mm. diametro instructa. *Androgynophorum* 0.75 mm. longum, apice 10-lobulatum, ciliatum. *Stamina* numerosa, filamentis glabris. *Ovarium* dense pilosum; stylus 3.5 mm. longus, staminibus paulo longior, inferne pauci-pilosus.

Lampun, Mé Lee, 480 m., deciduous jungle, generally near streams; flower yellow, dotted scarlet, *Khun Winit* 340.

Lao name, Yarp-chang: Yarp-sam-harng.

Acer Garrettii, *Craib* [Aceraceae]; species nova *A. philippino*, Merrill, similis, sed inflorescentia longiore haud glabra facile distinguenda.

Arbor ramulis glabris cortice brunneo vel fusco-brunneo obtectis sparse lenticellatis. *Folia* simplicia, opposita, oblonga, oblongo-elliptica vel oblongo-oblanceolata, apice acute obtuseve acuminata, rarissime rotundata, basi cuneata vel late cuneata, 6.5-15 cm. longa, 2.5-7 cm. lata, chartaceo-coriacea, glabra, subtus saepe albicantia, e basi trinervia, nervis basalibus lateralibus fere ad folii medium currentibus, nervis secundariis (e costa ortis) 3-5 supra conspicuis subtus prominentibus intra marginem anastomosantibus nervulis rete pagina utraque prominens sed inferiore laxius efficientibus, margine integra, incrassata, petiolo 2-5.5 cm. longo glabro apice paulo incrassato supra praesertim superne canaliculato suffulta. *Racemi* ♂ ex alabastris axillaribus apicem versus ramulorum orti, petiolis subaequilongi, praesertim superne pilosuli, pedunculo communi vix 1 cm. longo squamarum cicatricibus basi notato suffulti, pedicellis circa 5 mm. longis basi bractea parva decidua instructis. *Perianthii* segmenta 8, inter se subaequalia, lineari-lanceolata, circa 2.5 mm. longa, ciliata. *Stamina* 8, filamentis ad 4 mm. longis glabris. *Ovarii* rudimentum breve, dense sericeum.

Doi Intanon, Pah Ngeam, North Peak, 2070 m. Tree 61 cm. girth at 1.3 m. from ground, *Garrett* 77 (Fl. 21st Oct. 1910).

***Leea pallida*, Craib** [Ampelidaceae]; species nova ramulis, petiolis, inflorescentiaeque ramulis pallide corticatis, foliis simpliciter pinnatis distincta.

Frutex circa 1.5 m. altus (ex *Kerr*), ramulis griseo-cinereo-corticatis glabris longitudinaliter striatis. *Folia* simpliciter pinnata, 38 cm. longa, petiolo communi 6 cm. longo longitudinaliter striato inferne late canaliculato suffulta, rhachi in sulco praesertim superne breviter pauci-pilosa et ad foliolorum insertionem inter petiolulos pilosa aliter glabra; foliola 7, oblonga, lanceolato-oblonga vel terminali oblongo-oblancoato, apice acuminata, basi rotundata vel cuneato-rotundata, interdum parum inaequilaterialia, terminali cuneato, ad 25 cm. longa et 7 cm. lata, chartacea, supra glabra, subtus pallidiora, ad costam nervos nervulosque setulosa, nervis lateralibus utrinque ad 15 supra conspicuis subtus prominentibus, nervulis transversis inter se parallelis supra subconspicuis subtus prominulis, reticulatione vix conspicua, margine distanter crassius serrata, praesertim inferne pauci-ciliata, petiolulo 3.2 cm. longo vel terminali 25 mm. longo suffulta. *Inflorescentia* corymbosa. *Calyx* breviter lobatus. *Corolla* generis. *Discus* 1.75 mm. altus, in segmenta 5 apice breviter apiculata fere ad basem partitus. *Filamenta* 1.5 mm. longa, antheris oblongis subaequilonga.

Doi Sutep, mixed jungle, 450 m.; flowers greenish-white, *Kerr* 3390.

***Viburnum Garrettii*, Craib** [Caprifoliaceae-Sambuceae]; ab affini *V. Colebrookiano*, Wall. indumento ramulorum et foliorum distinguendum.

Frutex grandis vel arbuscula (ex *Garrett*), ramulis iuventute dense fulvo-stellato-tomentosis demum glabrescentibus cinereo-brunneo-corticatis. *Folia* elliptica vel oblongo-elliptica, apice obtuse acuminata vel caudato-acuminata, basi late cuneata vel rotundato-cuneata, 7-21 cm. longa, 5-13 cm. lata, rigide chartacea, supra ad costam densius fulvo-subhirsuta, aliter pilis fasciculatis hic illic instructa, subtus pallidiora, ad costam nervos nervulosque stellato-furfuracea, nervis lateralibus utrinque ad 10-11 intra marginem ramosis supra conspicuis vel haud rarius parum impressis subtus prominentibus, margine crassius crenata vel serrato-crenata, petiolo ad 2 cm. longo primo dense fulvo-stellato-tomentoso supra conspicue canaliculato suffulta. *Infructescentia* et axillaris et terminalis, umbelliformis, ad 12 cm. diametro, pedunculo (primario) communi 4-7 cm. longo suffulta, pedunculis secundariis 3-5 ad 4 cm. longis, pedunculis tertiariis ad 2 cm. longis, pedunculis ultimis paucifloris vix 1 cm. longis, pedunculis omnibus furfuraceo-tomentellis, pedunculo communi apice bracteis duabus circa 5 mm. longis deciduis instructo. *Fructus* sessilis vel breviter pedicellatus, 5-5 mm. longus, calyce circa 0.75 mm. longo et stylo 1.75 mm. longo coronatus.

Mê Nya, Mê Karang, 840 m., hanging over streams, *Garrett* 102.

***Diospyros Collinsae*, Craib** [Ebenaceae]; *D. Toposiae*, Ham. quoad folia similis sed calyce floris masculi valde diversa.

Arbor parva (ex *Collins*), ramulis glabris sicco iuventute fuscis mox cinereo-brunneis vel fere cinereis interdum subnitidis. *Folia* oblongo-lanceolata, oblonga vel oblongo-oblancheolata, apice saepe subacuminata, summo apice rotundata, truncata vel interdum retusiuscula, basi cuneata vel fere rotundata, usque ad 20 cm. longa et 6·8 cm. lata, coriacea, pagina utraque glabra, costa subtus prominente supra inferne canaliculata, nervis lateralibus utrinque circa 12 intra marginem anastomosantibus pagina utraque prominulis, nervulis rete utrinque prominulum efficientibus, margine integra, petiolo circa 1 cm. longo supra late haud alte canaliculato suffulta. *Inflorescentia* mascula axillaris, e parte inferiore ramuli hornotini orta, e cymulis trifloris tribus constitutâ, pedunculo communi ad 1 cm. longo suffulta, pedunculis partialibus ad 5 mm. longis, flore terminali subsessili, floribus lateralibus breviter pedicellatis, bracteis cito deciduis. *Calyx* 4-merus, utrinque pilosulus, vix 1 cm. longus, lobis tubo plus minusve dimidio brevioribus imbricatis late deltoideis vel ovato-deltoideis apice obtusiusculis ciliolatis. *Corolla* alba (ex *Collins*), ima basi excepta extra adpresse pubescens, tubo e calyce paulo exserto, lobis 4 supra pilosulis 7 mm. longis 5 mm. latis. *Antherae* 16, per paria connatae, ad 5 mm. longae, apice longius attenuatae, filamentis vix 2 mm. longis glabris. *Ovarii* rudimentum conspicuum, pilosum.

Srirācha (S. Siam), 4·5-6 m., *Mrs. D. J. Collins* 90, 423.

***Diospyros similis*, Craib** [Ebenaceae]; ab affini *D. strigosa*, Hemsl., corolla longiore cognoscenda.

Arbor parva (ex *Kerr*); ramuli graciles, iuventute sat copiose brunneo-hirsuti, demum glabri, cinereo-corticati et fusco-lenticellati. *Folia* oblongo-lanceolata vel oblonga, apice longius attenuata vel acuminato-attenuata, summo apice acuta, basi rotundata vel subcordatula, rarius cuneata, usque ad 13·5 cm. longa et 4 cm. lata, rigide chartacea, supra primo parce pubescentia, mox glabra, subtus pallidiora, ad costam nervosque laterales hirsuta, aliter pubescentia, nervis lateralibus utrinque 7-8 intra marginem anastomosantibus supra conspicuis subtus prominentibus, margine integra, leviter recurva, iuventute longius ciliata, petiolo vix 5 mm. longo terete primo hirsuto demum glabro suffulta. *Flores* masculi albi (ex *Kerr*) gemini, axillares, ramulis hornotinis saepissime gesti, sessiles, basi perulis imbricatis apice rotundatis dorso medio adpresse ferrugineo-pubescentibus interioribus circa 2·5 mm. longis exterioribus conspicue maioribus instructi. *Calyx* dorso adpresse strigosus, intra glaber, 6 mm. longus, lobis 4 lanceolatis acutis 4 mm. longis. *Corolla* extra praesertim superne adpresse strigosa; tubus vix 9 mm. longus; lobi 4, oblongo-lanceolati, acuti, 5·5 mm. longi, circa 3 mm. lati. *Stamina* in fascicula trimera disposita, glabra, antheris angustis longe acuminatis.

Srirācha, circa 30 m., evergreen jungle, *Kerr* 2112.

***Diospyros viridis*, Craib** [Ebenaceae]; species nova foliis plus minusve oblongis acuminatis, floribus masculis axillaribus sessilibus, calyce minute denticulato, staminibus 20 per paria connatis cognoscenda.

Arbor circa 15 m. alta (ex *Kerr*), ramulis gracilibus glabris. *Folia* oblonga vel oblongo-lanceolata, apice acuminata, obtusa, basi cuneata, 10-17 cm. longa, 2.5-5.3 cm. lata, chartacea, glabra, subtus pallidiora, nervis lateralibus utrinque ad 14 intra marginem anastomosantibus supra subconspicuis subtus prominulis, nervulis reticulationem laxam subtus prominulam formantibus, margine integra saepius leviter recurva sed basi semper conspicue recurva, petiolo ad 1 cm. longo supra canaliculato suffulta. *Flores* masculi albi (ex *Kerr*), in axillo quoque circa 5-fasciculati, sessiles, rhachi abbreviata breviter brunneo-pubescente. *Calyx* coriaceus, sicco ater, elongato-cupularis, dentibus brevibus inclusis 5 mm. longus, setulis paucis adpressis hic illic dorso instructus, dentibus densius breviter brunneo-pubescentibus. *Corollae* glabrae sicco fuscae tubus 7 mm. longus, lobis 5 lanceolatis obtusis circa 6.5 mm. longis. *Stamina* 20, per paria connata, antheris linearibus 3.5-4.5 mm. longis glabris breviter acuminatis filamentis brevibus glabris suffultis.

Chiengmai, Doi Sutep, evergreen jungle, 1670 m., *Kerr* 3198.

Symplocos Kerrii, *Craib* [Symplocaceae]; species nova foliis lanceolatis vel oblongo-lanceolatis acuminatis summo apice acutis, racemis simplicibus foliis circa duplo longioribus distinguenda.

Arbor parva vel mediocris (ex *Kerr*); ramuli subgraciles, iuventute brunneo-pilosuli, mox glabri vel fere glabri, brunneo-corticati. *Folia* lanceolata vel oblongo-lanceolata, acuminata, acuta, basi cuneata, ad 13 cm. longa et 3.5 cm. lata, rigide chartacea, supra viridia, glabra, subtus pallidiora, ad costam nervosque laterales sparse pilosa, aliter pilis sat longis distanter instructa, costa supra impressa subtus prominente, nervis lateralibus utrinque circa 9 intra marginem anastomosantibus supra conspicuis interdum leviter impressis subtus prominulis, margine revoluta, hydathodis conspicuis instructa; petioli circa 7 mm. longi, supra latius haud alte canaliculati, pilosi, sicco fuscescentes. *Racemi* axillares, simplices, petiolis circa duplo longiores, rhachi pedicellisque densius pallide brunneo-pilosulis, pedunculo communi abbreviato; bractee deciduae, pedicellis fructus juvenilis circa 1 mm. longis. *Receptaculum* circa 1 mm. altum, sericeum. *Calyx* 1.5 mm. longus, extra sericeus, intra glaber, tubo brevi, segmentis oblongis vel ovato-oblongis apice rotundatis pennicellatis circa 0.75 mm. latis. *Corolla* alba (ex *Kerr*), 5-partita, segmentis oblongis apice rotundatis 2.5 mm. longis 1.75 mm. latis, tubo 0.5-0.75 mm. longo. *Stamina* haud in phalanges aggregata, ad 4 mm. longa, glabra, antheris parvis. *Discus* conspicuus, pilosus. *Stylus* 3 mm. longus, glaber. *Fructus* immaturus ambitu oblongus, viridis, subsericeus, calyce persistente coronatus.

Doi Sutep, 900-1020 m., in evergreen jungle, *Kerr* 890, 2295.

Styrax casearifolia, *Craib* [Styracaceae]; species foliis oblongis vel ovato-oblongis, florum alabastris dense et longius pallide subhirsutis cognoscenda.

Arbor circa 9-metralis (ex *Kerr*); ramuli primo sat dense brevius furfuracei, demum plus minusve glabrescentes, cortice iuventute pallido mox brunneo vel rubro-brunneo longitudinaliter

fisso obtekti; alabastra axillaria duo, dense ferrugineo-furfuracea, superiore distincte stipitato. *Folia* oblonga vel ovato-oblonga, apice plus minusve distincte acuminata, summo apice costa excurrente apiculata, basi parum ipaequilateralis, late cuneata vel interdum rotundata, usque ad 12 cm. longa et 5 cm. lata, rigide chartacea, supra viridia vel plus minusve brunnescentia, pilis paucis brevibus stellatis instructa, subtus pallide viridia, pilis iisdem sed paulo densius instructa praetereaque in nervorum axillis pubescentia, nervis lateralibus utrinque 5-6 sat obliquis supra conspicuis vel prominulis subtus prominentibus, nervis transversis subtus prominulis, margine anguste serrulata; petioli circa 5 mm. longi, supra late canaliculati, sicco brunnescentes. *Inflorescentia* e racemis brevibus in ramulis axillaribus inferne foliiferis racemosim dispositis constituta; bracteae angustae, circa 5 mm. longae; alabastra densius subhirsuta, pedicellis ad 4 mm. longis suffulta. *Corollae* lobi valvati. *Fructus* griseus, ellipsoideus, circa 1.2 cm. longus, pericarpio irregulariter fisso.

Doi Wao, 900 m., edge of clearing in evergreen jungle, *Kerr* 2432.

***Stemona Collinsae*, Craib** [Roxburghiaceae]; a *S. Kerrii*, Craib, habitu, nervis transversis haud tam approximatis subtus haud pilosis differt.

Caulis simplex, erectus (an semper?), sicco iuventute griseo-viridis, mox stramineus, striatulus, longitudinaliter denticulatus, 40 cm. altus. *Folia* inferiora ad squamas deltoideas stramineas redacta, normalia ovata, apice caudato-acuminata, summo apice nervo excurrente mucronata, basi cordata, ad 10 cm. longa et 7 cm. lata, membranaceo-chartacea, supra viridia, glabra, subtus pallidiora, ad nervos minute scaberula, e basi 13-nervia, nervis supra impressis subtus prominentibus, nervis transversis gracilibus numerosis pagina utraque conspicuis, petiolo apice basique incrassato 5-7 cm. longo suffulta. *Flores* viridi-lactei (ex *Collins*), in axillis foliorum et squamiformium et normalium solitarii, vel interdum in axillis superioribus racemosim dispositi, pedicellis 2.5-4.5 cm. longis 6-7 mm. infra apicem articulatis apice incrassatis suffulti. *Perianthii* segmenta ad 1.7 cm. longa et 7.5 mm. lata. *Antherae* elongatae, perianthii segmentis subaequaltae, filamentis brevibus inferne complanatis suffultae. *Ovarium* generis, ovulis paucis.

Srirācha, on bank above beach, *Mrs. D. J. Collins* 399, 131: in mixed jungle close to sea-shore, *Kerr* 4241.

XLIX.—DISEASES OF THE OIL PALM IN WEST AFRICA.

E. M. WAKEFIELD.

(With Plate.)

While there is a considerable amount of literature dealing with diseases of the coconut palm, some of which, as bud-rot, are very destructive, very little is known of diseases and pests of the oil-palm. Hitherto, in fact, this palm does not appear to have suffered greatly from the attacks of insect or fungoid enemies, no doubt largely because in West Africa, even if not indigenous, it appears to enjoy optimum conditions of soil and climate. During the past few years, however, various records of diseases of the oil-palm in West Africa have accumulated. It may be that with the increasing economic importance of the plant more attention is being paid to injurious parasites. On the other hand it is quite possible that the parasites which attack the coconut and certain other palms are at length adapting themselves to the oil-palm, and if so it is important for the oil-palm industry that attention should be called to this source of danger.

Information is as yet very incomplete, but it is hoped that a summary of such facts as have come to the knowledge of Kew may serve to draw attention to the matter, and lead to an extension of our knowledge.

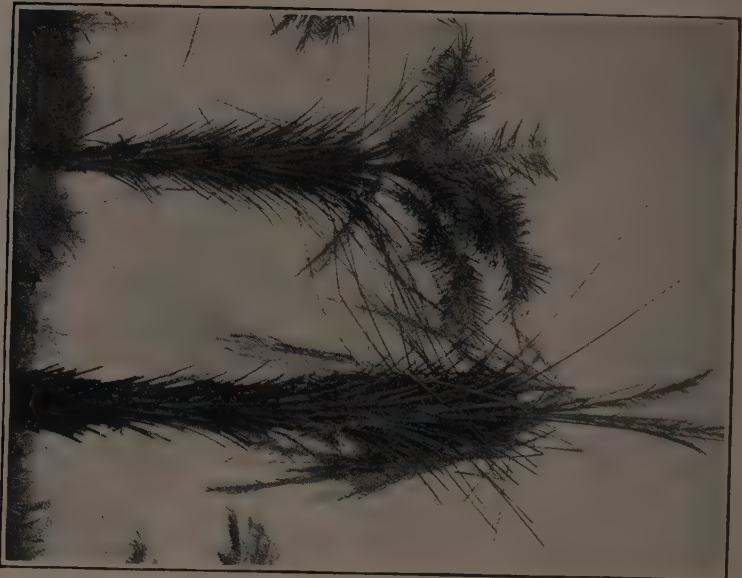
Good specimens of fungi suspected of attacking the oil-palm and photographs of typical diseased palms, together with as many observations as possible as to method and conditions of attack, would be most welcome in this connection.

I. *Rot of trunk due to Ganoderma* sp.

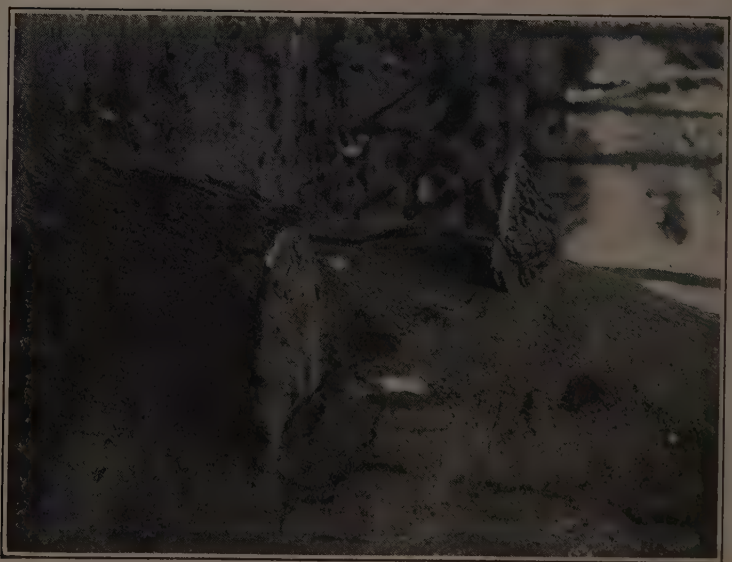
In 1915 a report was received from Messrs. Lever Bros. concerning a fungus attacking oil-palms on their estate at Leverville, Congo. Specimens of the fungus were sent, and although it was obviously a *Ganoderma*, near to *G. lucidum*, the material was unfortunately too old and decayed for certain specific identification. As far as could be judged it seemed to agree best with *G. tumidum*, Bres.

This fungus was stated to be very common in the district and widely distributed. It attacked the base of the trunk and was most frequently seen on mature trees, but was also observed to attack and kill young trees. After the death of the tree the fungus persisted for an indefinite period as a saprophyte, thus providing a continual source of infection. Moreover, when the roots of dead trees were "grubbed" out it was noticed that much mycelium persisted in the soil. In the same report it was mentioned that certain species of beetles bore holes into the base of the palms, and may provide access for the spores.

No further information was obtained as to this case, but in 1917 the late Mr. C. O. Farquharson, mycologist for S. Nigeria, reported that he had found a few oil-palms at Awka and Agwoba dying from attack by *Ganoderma lucidum*, Karst. (= *Fomes lucidus*, Fr.). They were old trees, and had probably been



1



weakened by tapping for wine; he did not consider there was any likelihood of the fungus becoming epidemic.

This fungus, *G. lucidum*, also attacks the Coconut palm, the Areca palm, and probably others, and is a common saprophyte all over the world. It seems to be only an occasional wound-parasite, but even so it may possibly cause considerable loss in districts where it is abundant.

Recently notes and photographs have been received from Mr. R. Swainson Hall, of Cabinda, Portuguese Congo, of a disease on oil-palms there caused by a species of *Ganoderma* which he also regards as *G. lucidum*. This fungus causes a rot of the internal tissues near the base of the trunk, and is said by Mr. Swainson Hall to be very destructive. The photographs reproduced as plates show a healthy (left) and diseased (right) palm side by side, Plate II. fig. 1, and sporophores of the fungus at base of trunk, Plate II. fig. 2.

In L'Agronomie Coloniale, Vol. IV. No. 30, 1920, pp. 187-191, Maublanc and Navel have described a similar disease of the oil-palm in the islands of San Thomé and Principe off the West Coast of Africa. The fungus causes a rot, and eventually produces a large cavity at the base of the trunk. In this case the causative agent was identified by Patouillard as *Ganoderma applanatum*.

From these various records it is obvious that there is widely spread in West Africa a trunk-rot of *Elaeis guineensis* due to a species of *Ganoderma*. There is some doubt as to whether one or more species of *Ganoderma* is concerned. The names *G. tumidum* (?), *G. lucidum*, and *G. applanatum* have been applied, but *a priori* it would seem more probable that only one species is really parasitic. It is very desirable therefore that the fruit-bodies of any fungi suspected of causing disease, when in good condition, should be collected and sent to some recognised systematist for identification.

Whatever may be the species of *Ganoderma*, however, the remedial measures to be taken would be similar, namely, the grubbing out and burning of attacked trees, and the isolation of diseased areas by deep trenches. As far as is practicable the production of wounds in the process of "cleaning" should be reduced to a minimum. Although it is unlikely that infection by these trunk-rotting fungi ever takes place through the crown, such wounds may offer entrance to other organisms. Obviously, also, felled trunks should not be left lying for any length of time, or a crop of sporophores would be produced from which new spore-infections might take place.

II. Bud-Rot?

Hitherto the disease known as "Bud-Rot" has only been known to attack the Coconut Palm. In a report dated Nov. 22, 1917, on the occurrence of disease in Coconut and Oil Palms in the Southern Provinces of Nigeria, Mr. C. O. Farquharson pointed out that should a specially virulent strain of the organism of bud-rot ever become evolved, capable of attacking the Oil-palm, the practice of cabbage-tapping provides an easy mode of entrance. Mr. Farquharson recommended that cabbage-tapping should be

rigorously suppressed, and that *all* tapping for wine should be prohibited in districts where coconut bud-rot exists.

In view of this warning, it is disquieting to note that Mr. Swainson Hall has reported the existence of a disease of Oil-palms in the Portuguese Congo which suggests very strongly "bud-rot." He states that the disease attacks the palms during the period of fruit-bearing. Young bunches of fruits ripen prematurely, and eventually become dried up. The leaf-bases of the younger leaves are infected, and in the course of six to eight weeks the leaves wilt and fall over, finally breaking away. The disease eventually reaches the soft, succulent growing-point, which rots away, and emits an exceedingly foul odour. Attacked palms never recover.

No confirmatory evidence as to the nature of this disease has been obtained, but the symptoms, especially the evil-smelling rot of the growing-point, are certainly indicative of Bud-rot whatever the cause of the disease may be. No such disease has as yet been reported from any other districts.

III. *Boring beetles.*

In connection with the possible spread of fungus diseases, in particular *Ganoderma lucidum* and other trunk-rotting species, by means of beetles, it is interesting to note that a beetle which was found by Mr. Swainson Hall to be doing considerable damage to Oil-palms has been identified by Dr. Guy Marshall as *Oryctes owariensis*, P. de B. Mr. Hall states that since the beginning of the year he has cut down and destroyed 40 trees attacked by this beetle, which attacks not only the trunks but also the top of the palm. It is probable that the adoption of measures to decrease the numbers of these beetles would also be of use in checking the spread of certain fungus diseases.

L.—STELLARIA OR ALSINE.

T. A. SPRAGUE.

The name *Alsine* has been applied to three distinct genera, namely, *Minuartia*, *Stellaria* and *Spergularia*. Thus *Alsine* of Gaertner, Wahlenberg, Fenzl, Asa Gray, Boissier, Nyman and the great majority of authors is *Minuartia*, Linn.; *Alsine* of Britton, Small and other American botanists is *Stellaria*, Linn.; and *Alsine* of Reichenbach, Hiern and Groves is *Spergularia*, J. & C. Presl.

It will be generally admitted that such divergence of usage is to be deplored, and the following account of the history of *Alsine* has been drawn up in the hope that some agreement may be arrived at as to the incidence of the name or its relegation to synonymy.

The genus *Alsine*, Linn. (Pentandria Trigynia), appeared in the Species Plantarum, ed. 1, p. 272 (1753), and Genera Plantarum, ed. 5, p. 132 (1754). The generic description is as follows:—

Cal. *Perianthium* pentaphyllum: Foliolis concavis, oblongis, acuminatis.

Cor. *Petala* quinque, aequalia, calyce longiora.

Stam. *Filamenta* quinque, capillaria. *Antherae* subrotundae.

Pist. *Germen* subovatum. *Styli* tres, filiformes. *Stigmata* obtusa.

Per. *Capsula* ovata, unilocularis, tecta.

Sem. plurima, subrotunda.

As first constituted, *Alsine* included two species: 1, *A. media*, Linn. (*Stellaria media*, Vill.); 2, *A. segetalis*, Linn. (*Spergularia segetalis*, G. Don.). Linnaeus subsequently added a third species, *A. mucronata*, in *Species Plantarum*, ed. 2, p. 389 (1762). This has been identified by different authors with *Alsine fasciculata*, *A. rostrata*, *A. tenuifolia* and *A. arvensis*, all of them species of *Minuartia*, Linn.

Thus *Alsine* Linn. (1753) = *Stellaria* + *Spergularia* (*Delia*); and *Alsine*, Linn. (1762) = *Stellaria* + *Spergularia* + *Minuartia*. It included all *Alsineae* known to Linnaeus which had 5 stamens and 3 styles, and was a thoroughly artificial genus, as was pointed out by Stokes in 1787.* It differed from *Arenaria*, Linn., in having five instead of ten stamens. This is illustrated by the history of *A. mucronata*: Linnaeus originally included this species in *Sp. Pl.* ed. 1, p. 424, as *Arenaria mucronata* (*Decandria Trigynia*), because Haller had placed it in *Diplostemon*;† he transferred it to *Alsine* (*Pentandria Trigynia*), in *Sp. Pl.* ed. 2, p. 389, on the strength of Seguier's statement that the species had only five stamens.‡

Alsine, Linn., was disintegrated in 1789 by Villars, who transferred *A. media*, Linn., to *Stellaria*; *A. segetalis*, Linn., to *Spergula*; and *A. mucronata*, Linn., to *Arenaria*, as a synonym of *Arenaria tenuifolia*. The Linnean genus thus disappeared completely.§

In 1791, however, Gaertner recognised that *Alsine mucronata* differed generically from *Arenaria* in its three-valved capsule, and revived the genus *Alsine*, with *A. mucronata* as its type species.|| Wahlenberg in 1812 accepted Gaertner's definition of *Alsine*,¶ and in 1831 included *Lepigonum* (*Spergularia*) in the genus.** Finally, Fenzl in 1840 reduced *Minuartia*, Linn. (1753) and *Cherleria*, Linn. (1753) to *Alsine*, Wahlenb. (1812), and excluded *Spergularia* and *Honkenya*.†† The generic name *Alsine* has been used in the same sense by Asa Gray, Boissier and Nyman, and in most of the standard European floras of the nineteenth century.

* Withering, *Arr. Brit. Pl.* ed. 2, i. p. 323 (1787).

† Egun, *Stirp. Helvet.* p. 389, n. 13 (1742).

‡ Seguier, *Pl. Veron.* iii. p. 175 (1754).

§ *Hist. Pl. Dauph.* iv. pp. 615, 628, 634, 636, 657 (1789).

|| *De Fructibus*, ii. p. 223 (1791).

¶ *Fl. Lapp.* p. 127 (1812).

** *Fl. Suec.* i. p. 290 (1831).

†† *Endl. Gen. Pl.* p. 964 (1840).

As the Linnean genus *Alsine* originally included only a species of *Stellaria* and one of *Spergularia* (*Delia*), it is clearly contrary to the recognised rules of nomenclature to use the Linnean name for a third genus (*Minuartia*). This was realised by Reichenbach, who in 1832 restricted the Linnean genus *Alsine* to *Spergularia*, Pers., and proposed a new genus, *Sabulina*, to receive *Alsine mucronata* and its congeners.* After Fenzl had reduced *Sabulina* and *Minuartia* to sections of *Alsine*, Wahlenb.,† Reichenbach divided *Sabulina* into two genera, *Sabulina* (= *Alsine*, series *Sabulineae*, Fenzl) and *Minuartia* (= *Alsine*, series *Minuartieae*, Fenzl).‡

The generic name *Alsine*, Wahlenb., remained in general use, however, until 1899, when Hiern pointed out that it should be replaced by *Minuartia*, Linn.§ *Minuartia* has been accepted by H. and J. Groves, || Britten and Rendle, ¶ Schinz and Thellung,** Hayek, †† Briquet, ‡‡ Graebner, §§ and others, and should supersede *Alsine*, Wahlenb.

Moss, however, has retained *Alsine*, Wahlenb., and claims that his position is in accordance with the general aims and spirit of the International Rules. |||| As *A. mucronata* was not included in *Alsine* until the second edition of the Species Plantarum, the acceptance of *Alsine*, Wahlenb., is contingent on the adoption of 1762 as the starting point of botanical nomenclature, which is contrary to the International Rules and the American Code. It further implies the acceptance of what may be termed the principle of "generic residues" in lieu of that of "generic types." Instead of attempting to determine the type of the Linnean genus *Alsine*, ¶¶ Moss starts with the Species Plantarum, ed. 2, excludes *A. media* from consideration because it has been transferred to *Stellaria*, and *A. segetalis* because it is now generally placed in *Spergularia* (a nomen conservandum), and treats the residue, namely, *A. mucronata*, as the type of the genus.

The principle of "generic types," on the other hand, is admirably presented in the regulations for fixing generic types proposed by a committee of the Botanical Society of America:***

Article 1. The application of generic names shall be determined by type species.

Article 2. The type species shall be the species or one of the

* Fl. Germ. pp. 566, 785 (1832).

† Endl. Gen. Pl. p. 964 (1840).

‡ Nomencl. pp. 204, 205, nn. 7767, 7768; Ic. Fl. Germ. v. pp. 27, 28 (1841).

§ Journ. Bot. 1899, p. 320.

|| Babington, Man. Brit. Bot. ed. 9, p. 60 (1904).

¶ Brit. Mus., List Brit. Seed-plants, p. 6 (1907).

** Bull. Herb. Boiss. Sér. 2, vii. p. 402 (1907).

†† Fl. Steiermark, i. p. 270 (1908).

‡‡ Prodr. Fl. Corse, i. p. 529 (1910).

§§ Syn. Mitteleur. Fl. v. p. 698 (1918).

|||| Journ. Bot. 1914, p. 196.

¶¶ It is shown below that *A. media* was the type.

*** Science, n.s. xlix. pp. 333-336 (1919).

species included in the genus when originally published (publication of the genera of seed plants dating from the issue of Linnaeus's "*Species Plantarum*" in 1753).

The remaining Articles are concerned with the principles which should be followed in determining the types of genera, and are framed in such a spirit as to warrant the hope expressed that an international agreement upon the types of all genera may be arrived at.

Moss suggested that *Alsine*, Wahlenb., should be treated as a nomen conservandum under Article 20 of the International Rules. Had *Alsine* been a new generic name proposed by Wahlenberg, more might be said in favour of this course. What it would really amount to is the supersession of *Minuartia*, Linn. (1753), a generic name about which there is no ambiguity, by *Alsine*, Linn. (1762) pro parte, non Linn. (1753).

A new generic name, *Alsinopsis*, was proposed for *Alsine*, Wahlenb., in 1903 by Small,* who was perhaps unaware that the genus in question already possessed seventeen names, two of which date from 1753. Even if Fenzl's sections of *Alsine* are regarded as independent genera, the generic names *Alsinanthe*, Reichb., and *Mononeuria*, Reichb. (see below) are available for the North American species.

The synonymy of *Alsine*, Wahlenb. was given in some detail in Dalle Torre et Harms, Gen. Siphonog. p. 157 (1900), but the genus was attributed erroneously to Scopoli (as in the Index Kewensis), three synonyms were omitted, and *Gypsophytum*, Adans. was quoted as a synonym. But *Gypsophytum* was described by Adanson as having a 6-valved capsule,† and was based on six species,‡ three of which are now included in the genus *Arenaria*, namely: *Arenaria serpyllifolia*, *A. saxatilis* and *A. aggregata*. The remaining species are *Moehringia trinervia*, *Minuartia tenuifolia* and *Cerastium strictum*. *Gypsophytum* was thus a mixture of four genera, but was mainly *Arenaria*, Linn., and Adanson gives a cross reference from *Arenaria*, Linn. to *Gypsophytum*.§

Although for convenience' sake the writer has hitherto referred to *Alsine*, Wahlenb. in accordance with the usual custom, the genus should really be ascribed to Gaertner, who was the first to distinguish it by the number of the capsule valves, and gave *A. mucronata* as the type species. Wahlenberg himself quoted Gaertner's description and figure as defining the genus.||

In view of the confusion of nomenclature it may not be superfluous to give the principal synonymy of *Minuartia*, Linn.

Minuartia, Linn. Sp. Pl. ed. 1, p. 89 (1753); Gen. Pl. ed. 5, p. 39 (1754); Hiern in Journ. Bot. 1899, p. 320 (sensu ampliato); H. et J. Groves in Bab. Man. Brit. Bot. ed. 9, p. 60 (1904);

* Fl. S. E. United States, ed. 1, p. 419 (1903).

† Fam. Pl. ii. p. 256 (1763).

‡ l.c. 564.

§ l.c. 520.

|| Fl. Lapp. p. 127 (1812).

Britten et Rendle, List Brit. Seed-plants, p. 6 (1907); Schinz et Thellung in Bull. Herb. Boiss. Sér. 2, vii. p. 402 (1907); Maire et Petitmengin, Mat. Fl. Géogr. Bot. Orient, iv. p. 48 (1908); Hayek, Fl. Steiermark, i. p. 270 (1908); Hand.-Mazz. in Ann. Nat. Hofmus. Wien, xxiii. p. 150 (1909); Briquet, Prodr. Fl. Corse, i. p. 529 (1910); Bornm. in Beih. Bot. Centralbl. xxvii. Abt. 2, p. 318 (1910); Graebner, Syn. Mitteleur. Fl. v. p. 698 (1918), excl. sect. *Psammophilae* (*Rhodalsine*).

Cherleria, Linn. Sp. Pl. ed. 1, p. 425 (1753); Gen. Pl. ed. 5, p. 194 (1754).

Alsine, Linn. Sp. Pl. ed. 2, p. 389 (1762), quoad *A. mucronata*, non Linn. (1753).

Alsine, Gaertn. De Fructibus, ii. p. 223, t. 129, f. 7 (1791); Wahlenb. Fl. Lapp. p. 127 (1812); Fl. Suec. i. p. 290 (1831), excl. species n. 504-6 (*Spergularia* et *Honckenia*); Koch, Syn. ed. 1, p. 111 (1837), excl. spp. 1-4 (*Spergularia* et *Honckenia*); Meisn. Gen. p. 25 (1837); Comment. p. 21; Fenzl in Endl. Gen. p. 964 (1840), excl. sect. *Psammophilae*; et in Ledeb. Fl. Ross. i. p. 341 (1842); A. Gray, Gen. Ill. ii. p. 33, t. 111 (1849); Boiss. Fl. Or. i. p. 669 (1867), excl. series *Rhodalsineae*; Nyman, Consp. p. 116 (1878), excl. *Rhodalsine*; Pax in Engl. et Prantl, Nat. Pflanzenfam. iii. 1 B, p. 82 (1889), excl. *Honckenia* et *Rhodalsine*; Moss in Journ. Bot. 1914, p. 200, excl. *Honckenia*; et in Cambridge Brit. Fl. iii. p. 32 (1920).

Arenaria, sect. *Alsine*, Benth. et Hook. f. Gen. Pl. i. p. 150 (1862).

Leptophyllum, Ehrh. Beitr. iv. p. 147 (1789), sine descr. [based on *Arenaria tenuifolia*, Linn.]

Siebera [Schrad. in Sieb. Fl. Austr. exs. n. 149 (1813)], Hoppe in Flora 1819, p. 24.

Somerauera, Hoppe, l.c. 26.

Sabulina, Reichb. Fl. Germ. p. 785 (1832), sensu lato; Nomencl. p. 205 (1841), sensu restricto; Ic. Fl. Germ. v. p. 27 (1841); Fl. Sax. p. 433 (1841); Hayek, Sched. Fl. Stir. Exsicc. p. 7 (1904).

Chetropis, Rafin. Fl. Tellur. iii. p. 80 (1836).*

Alsinanthus, Reichb. Handb. p. 298 (1837).*

Alsinanthe, Reichb. Nomencl. p. 205 (1841); Ic. Fl. Germ. v. p. 29 [*Alsine*, sect. *Alsinanthe*, Fenzl].

Facchinia, Reichb. Nomencl. p. 204, Syn. Red. p. 63 (1841), sub voce "*Lanceolatae*"; Ic. Fl. Germ. v. p. 29 (1841), descr. [*Alsine* sect. *Lanceolatae*, Fenzl].

Mononeuria, Reichb. Nomencl. p. 205, Syn. Red. p. 118 (1841), sub voce "*Uninerviae*" [*Alsine*, sect. *Uninerviae*, Fenzl].

Neumayera, Reichb. Nomencl. p. 205, Syn. Red. p. 2 (1841), sub voce "*Acutiflorae*"; Ic. Fl. Germ. v. p. 30 (1841), descr. [*Alsine*, sect. *Acutiflorae*, Fenzl].

Phlebanthe (sphalm. *Phlebanthia*), Reichb. Nomencl. p. 205, Syn. Red. p. 106 (1841) sub voce "*Spergella*" [*Alsine*, sect. *Spergella*, Fenzl].

* Not seen by the writer.

Saginella, Reichb. Nomencl. p. 205 (1841) [*Alsine*, sect. *Saginella*, Fenzl].

Tryphane, Reichb. Nomencl. p. 205 (1841); Ic. Fl. Germ. v. p. 28 [*Alsine*, sect. *Tryphane*, Fenzl].

Wierzbickia, Reichb. Nomencl. p. 205, Syn. Red. p. 106 (1841), sub voce "Spectabiles" [*Alsine*, sect. *Spectabiles*, Fenzl].

Greniera, J. Gay in Ann. Sc. Nat. Sér. 3, iv. p. 27 (1845).

Xeralsine, Fourr. in Ann. Soc. Linn. Lyon, n.s. xvi. p. 347 (1868).*

Alsinopsis, Small, Fl. Southeastern United States, ed. i. p. 419 (1903).

It should be pointed out that the synonymy of *Minuartia* as given above does not include *Rhodalsine*, J. Gay, *Hymenella*, Moçino et Sessé (*Triplateia*, Bartl), and *Honkenya*, Ehrh., which are here regarded as independent genera.

The genus *Mononeuria*, Reichb., seems to have been overlooked by all authors except Post and Kuntze, Lexic. Gen. Phan. p. 373 (1904), who refer it doubtfully to *Arenaria*: it was not included in the Index Kewensis, nor in Dalle Torre et Harms, Genera Siphonogamarum.

Phlebanthe (sphalm. *Phlebanthia*), Reichb. and *Psammanthe*, Reichb., are included in Ind. Kew. and Gen. Siphonog. as doubtful genera of Caryophyllaceae. At first sight No. 7775, *Phlebanthia*, 7776, *Mononeuria* and 7777, *Psammanthe* (Reichb. Nomencl. p. 205) appear to be nomina nuda; but they are defined in the Synonymorum reductio, pp. 106, 118, 94, as synonymous with *Alsine*, sections *Spergella*, Fenzl, *Uninerviae*, Fenzl, and *Psammophilae*, Fenzl, respectively. At that time Endlicher's Genera Plantarum had just been published, and the correspondence of Reichenbach's genera with Fenzl's sections of *Alsine* was more obvious than it is at the present day. A list of Fenzl's sections and Reichenbach's equivalent genera is subjoined.

Endl. Gen. pp. 964-5

Reichb. Nomencl. pp. 204-5 (1841).

1. <i>Sabulineae</i> .	7768.	<i>Sabulina</i> , Reichb.
2. <i>Minuartieae</i> .	7767.	<i>Minuartia</i> , Loeff.
3. <i>Tryphane</i> .	7769.	<i>Tryphane</i> , Reichb.
4. <i>Areioideae</i> .	7764.	<i>Siebera</i> , Schrad.
5. <i>Lanceolatae</i> .	7765.	<i>Facchinia</i> , Reichb.
6. <i>Acutiflorae</i> .	7773.	<i>Neumayera</i> , Reichb.
7. <i>Spectabiles</i> .	7772.	<i>Wierzbickia</i> , Reichb.
8. <i>Cherleriae</i> .	7766.	<i>Cherleria</i> , Hall.
9. <i>Saginella</i> .	7770.	<i>Saginella</i> , Reichb.
10. <i>Spergella</i> .	7775.	<i>Phlebanthe</i> , Reichb.
11. <i>Alsinanthe</i> .	7771.	<i>Alsinanthe</i> , Reichb.
12. <i>Uninerviae</i> .	7776.	<i>Mononeuria</i> , Reichb.
13. <i>Psammophilae</i> .	7777.	<i>Psammanthe</i> , Reichb.

* Not seen by the writer.

It has been shown that the name *Alsine* cannot legitimately be applied to *Minuartia*, Linn. The question now is: should it replace *Stellaria*, Linn., or *Spergularia*, J. et C. Presl, or be relegated to synonymy. A satisfactory answer cannot be given without tracing the history of its application to *Stellaria* and *Spergularia* respectively.

In 1772 *Alsine* was restricted to *A. media*, Linn., by Scopoli;* the two other Linnean species not being represented in his flora. He accordingly included the characters "petala bifida" and "capsula quinquevalvis" in his generic diagnosis. Instead, however, of uniting *Alsine* with *Stellaria*, he retained *Alsine* in Pentandria Trigynia, and placed *Stellaria* in Decandria Digynia. He included in *Stellaria* various species now referred to *Stellaria*, *Moehringia*, *Arenaria*, *Minuartia*, *Spergula*, *Sagina* and *Cerastium*! Evidently no great importance is to be attached to Scopoli's conceptions of the genera of Caryophyllaceae.

Savi, Fl. Pisana, i. p. 323 (1798), and Host, Fl. Austr. i. p. 405 (1827) also restricted *Alsine* to *A. media*, Linn.

The name *Alsine* was first used† as equivalent to *Stellaria* 28 years after the transference‡ of *A. media* to the latter. Stokes employed it in this sense in 1812, but included *Holosteum cordatum*, Linn. (*Drymaria cordata*) in the genus.§

The substitution of *Alsine* for *Stellaria* was so manifestly inconvenient that this application of the name fell into disuse.

In 1893, however, a further attempt was made to replace the name *Stellaria* by *Alsine*, as a result of the adoption of the principle of "priority of place" by the Botanical Club of the American Association for the Advancement of Science. The change was proposed by Britton, as follows:

"*Alsine*, L. Sp. Pl. 272 (1753). I note that this generic name must, on the recognition of priority of place, and the beginning of nomenclature in 1753, clearly displace *Stellaria*, L. Sp. Pl. 421 (1753).

As given in the Species Plantarum, the Linnean *Alsine* is composed of *A. media* (*Stellaria media*, Smith), and *A. segetalis*, now referred to *Tissa*."||

The line of argument might be summarised thus: *Alsine media* precedes *A. segetalis* on p. 272 of the Species Plantarum, and is therefore to be regarded as the type of *Alsine*, which accordingly becomes synonymous with *Stellaria*. Of the two generic names, *Alsine* must be adopted, as it occurs on an earlier page.

The substitution of *Alsine* for *Stellaria* has been accepted by a majority of botanists in the United States, including those of the New York Botanical Garden and the United States Department of Agriculture; at the Gray Herbarium, however, *Stellaria*

* Fl. Carniol. ed. 2, i. p. 224 (1772).

† After 1753. Linnaeus used *Alsine* in the sense of *Stellaria* in 1735 and 1737.

‡ By Cirillo, Char. Comm. p. 36 (1784); and independently by Villars, Hist. Pl. Dauph. iii. p. 615 (1789), and Withering, Arr. Brit. Pl. ed. 3, ii. p. 418 (1796).

§ Bot. Mat. Med. ii. p. 536 (1812).

|| Bull. Torr. Bot. Club, 1893, xx. p. 277.

is retained in accordance with the International Rules, and Jepson, *Flora of Western Middle California*, adopts the same attitude. Forty new combinations under *Alsine* have been proposed for North American species of *Stellaria*; and eight new species of *Stellaria* have been published under *Alsine*. Robinson mentions an example of the haste in which the change of nomenclature has proceeded: "the *Alsine Jamesii* of Holzinger, supposed to represent *Stellaria Jamesii*, Torr., in reality rests upon a mixture of the very different *S. oxyphylla* and a luxuriant form of the cosmopolitan *S. media*."*

Some of the more important generic references of *Stellaria* are given below:—

Stellaria, Linn. Sp. Pl. ed. 1, p. 421 (1753); Gen. Pl. ed. 5, p. 193 (1754); Cyrill. Char. Comm. p. 36 (1784); Vill. Hist. Pl. Dauph. iii. p. 615 (1789), emend.; Gaertn. De Fructibus, ii. p. 229, t. 130, f. 3 (1791); Endl. Gen. p. 969 (1840); A. Gray, Gen. Ill. ii. p. 37, t. 113 (1849); Benth. et Hook. f. Gen. Pl. i. p. 149 (1862); Boiss. Fl. Or. i. p. 705 (1867); Nyman Consp. p. 111 (1878); Pax in Engl. et Prantl, Nat. Pflanzenfam. iii. 1 B, p. 79 (1889); Robinson in A. Gray, Syn. Fl. N. Am. i. part 1, p. 232 (1897); Robinson et Fernald, Gray's New Man. Bot. p. 381 (1908).

Alsine, Linn. Sp. Pl. ed. 1, p. 272 (1753), pro parte (*A. media*, Linn.); Linn. Gen. ed. 5, p. 132 (1754), pro parte; Scop. Fl. Carniol. ed. 2, i. p. 224 (1772); Stokes, Bot. Mat. Med. ii. p. 536 (1812), excl. *A. rotundifolia*; Britton in Bull. Torr. Bot. Club, 1893, xx. p. 277; et in Mem. Torr. Bot. Club, v. p. 149 (1894); Kuntze, Rev. Gen. iii. p. 12 (1898); Britton, Man. Fl. Northern States & Canada, p. 394 (1907); Britton et Brown, Ill. Fl. ed. 2, ii. p. 41 (1913); Small, Fl. South-eastern United States, ed. 2, p. 421 (1913).

Reichenbach appears to have been the first to restrict *Alsine* to *Spergularia*, in his *Flora Germanica Excursoria*, p. 566 (1832). He included the following species: *A. segetalis*, L., *A. rubra*, Wahlenb., *A. marina*, Mert. et Koch, and *A. marginata* (DC.). All four species are now referred by most authors to *Spergularia*, but *A. segetalis* is sometimes regarded as the type of an independent genus, *Delia*, Dum.

Reichenbach's action was not followed by his contemporaries: the generic name *Spergularia* was adopted in Endlicher's *Genera Plantarum* (1840), and in most standard floras published since that date. In 1899, however, Hiern revived the use of *Alsine* for *Spergularia*,† and the name was accepted in the same sense by H. and J. Groves in 1904,‡ and Britten and Rendle in 1907.§ In 1906, however, *Spergularia* was placed on the list of *Nomina Conservanda* provided for in Article 20 of the International Rules.||

* Bot. Gaz. 1898, xxv. p. 166.

† Journ. Bot. 1899, p. 317.

‡ Babington, Man. Brit. Bot. ed. 9, p. 67 (1904).

§ Brit. Mus., List. Brit. Seed-plants, p. 6 (1907).

|| Act. Congr. Bot. Vienna. 1905, p. 241 (1906).

A selection of the principal generic references of *Spergularia* under that name and *Alsine* is given below. The remaining generic synonyms may be found in Harms et Dalla Torre, Gen. Siphonog. p. 158, and Graebner, Syn. Mitteleur. Fl. v. p. 825 (*Spergularia*) and p. 852 (*Delia*). After *Alsine*, the oldest name for the genus is *Tissa*, Adans. (1763). Schinz and Keller, Fl. Schweiz, ed. 3, p. 204 (1909), restrict *Alsine* to *Delia*, Dum., which they treat as an independent genus.

Spergularia, *J. et C. Presl*, Fl. Cech. p. 94 (1819); Fenzl, in Endl. Gen. p. 962 (1840); et in Ledeb. Fl. Ross. ii. p. 165 (1844); A. Gray, Gen. Ill. ii. p. 27, t. 108 (1849); Benth. et Hook. f. Gen. Pl. i. p. 152 (1862); Rouy. et Fouc. Fl. France, iii. p. 299 (1896); Act. Congr. Bot. Vienna, 1905, p. 241 (1906); Graebner, Syn. Mitteleur. Fl. v. p. 825 (1919).

Arenaria, sect. *Spergularia*, Pers. Syn. i. p. 504 (1805).

Alsine, Linn. Sp. Pl. ed. 1, p. 272 (1753), pro parte (*A. segetalis*, Linn.); Reichb. Fl. Germ. Excurs. p. 566 (1832), emend.; Nomencl. p. 162, n. 6306 (1841); Fl. Sax. pp. 311, 433 (1842); Hiern in Journ. Bot. 1899, p. 317; H. et J. Groves in Babbington, Man. Brit. Bot. ed. 9, p. 67 (1904); Britten et Rendle, List Brit. Seed-plants, p. 6 (1907).

The history of *Alsine*, Linn., before 1753, shows that *A. media* was the type of *Alsine*, Linn. (1753-4). *Alsine* was a Tournefortian genus adopted by Linnaeus in 1735.* His description in Gen. Pl. ed. 1, p. 133 (1737) included the characters "petala bipartita," "filamenta decem," "styli tres" and "capsula sexvalvis," and he added the following note: "Quaedam species luxuriat stylis quinque, alia filamenta facillime deiecit, ut vix numerari queant." In the Hortus Cliffortianus, p. 172 (1737), he included in *Alsine* by citation *Stellaria graminea*, *S. Holostea*, *S. media*, *S. nemorum* and *S. aquatica*. *Alsine*, Linn. (1737) was therefore equivalent to *Stellaria*, Linn. as circumscribed at the present day (including *Malachium*). When Linnaeus published his Species Plantarum, ed. 1, however, he broke up this natural genus in strict accordance with his sexual system: he transferred *Alsine media*, which was pentandrous, to Pentandria Trigynia, and retained the generic name *Alsine* for it; and placed *Stellaria aquatica*, which was pentagynous, in Decandria Pentagynia under *Cerastium*. His caryophyllaceous genera of 1753 were in consequence of such changes much less natural than those of 1737.

Linnaeus included a second species under *Alsine* in Sp. Pl. ed. 1: this was *A. segetalis*, a species which had not appeared previously in any of his works. It can hardly be maintained that this was the type of *Alsine*, Linn. (1753), rather than *A. media*, which was included in *Alsine*, Linn. (1737).†

The generic description of *Alsine* in Gen. Pl. ed. 5 is equally applicable (or inapplicable) to the two species. It was designed to cover both, as is evident from the omission of the number of

* Syst. Nat. ed. 1, Decandria Trigynia (1735).

† *Alsine media* appears to have been generally regarded as the type of *Alsine* for more than 50 years after 1753—see Pers. Syn. i. p. 330 (1805), and Guillemin in Dict. Class. Hist. Nat. xi. p. 205 (1827).

capsule-valves; and the description of the petals as longer than the sepals fits neither.

On historical grounds, then, the application of the name *Alsine* to *Spergularia* (or *Delia*) is inadmissible; and *Alsine*, Linn. may be regarded as synonymous with *Stellaria*, Linn. If 1737 were taken as the starting point of botanical nomenclature, *Alsine* would supersede *Stellaria*, but under the International Rules and the American Code the nomenclature of vascular plants begins in 1753.

The arguments for the retention of *Stellaria* may be stated as follows:

1. The description of *Stellaria* in Gen. Pl. ed. 5, (1754), is more accurate and complete than that of *Alsine*: it includes the important characters "petala bipartita" and "capsula sexvalvis." The description of *Alsine*, on the other hand, is vague, covering the common characters of two discordant elements, and it is inaccurate as regards the relative length of sepals and petals; the number of capsule valves is not mentioned.

2. Eight species were comprised in *Stellaria* in Sp. Pl. ed. 1, pp. 421, 1196, five of which are still recognised as belonging to the genus, namely, *S. nemorum*, *dichotoma*, *radians*, *Holostea* and *graminea*. *S. cerastoides* (*Cerastium trigynum*) was included because it had only 3 styles; and *S. biflora* (*Minuartia biflora*) and *S. Arenaria* (*Arenaria spathulata*) because their petals were emarginate. *Alsine* comprised two species, one of which was a *Stellaria*.

3. The five species under *Stellaria* are typical, whereas the single species under *Alsine* (*S. media*) is aberrant, the androecium having become reduced in correlation with the more frequent occurrence of autogamy.

4. There is no ambiguity about the name *Stellaria*,* whereas *Alsine* has been used for three different genera.

5. The first author who united *Alsine* with *Stellaria* chose the latter generic name.†

6. The name *Stellaria* has been in general use for the genus from 1753 down to the present day. *Alsine* has been used since 1893 in place of *Stellaria*, by the adherents of the American Code of Nomenclature, and by Otto Kuntze.

The fact that the name *Alsine* is more ancient than *Stellaria* cannot be adduced in favour of retaining the former by those who recognise 1753 as the starting point of botanical nomenclature. Linnaeus replaced *Alsine*, Tourn. by *Stellaria*, Linn., and quoted the former as a synonym.‡ He made a new genus *Alsine*, Linn. for the reception of two pentandrous *Alsineae*. The fact that one of these (*A. media*) is now recognised as belonging to *Stellaria* does not justify the revival of a Tournefortian name which Linnaeus deliberately rejected in favour of one of his own invention.

* *Stellaria*, Kuntze, is *Callitriche*, Linn., but the name has not been taken up by other botanists.

† Cyrill. Char. Comm. p. 36 (1784).

‡ Gen. Pl. ed. 5, p. 193 (1754).

Under Article 46 of the International Rules,* *Stellaria*, Linn. has precedence over *Alsine*, Linn., because the name *Stellaria* was chosen by Cirillo who was the first to unite the two genera.

Under Canon 13 of the American Code,† *Alsine* has precedence over *Stellaria* because it appeared on an earlier page of the same work.

The International Rules leave the choice of two generic names of the same date to the judgment of the first botanist who united the genera. The American Code makes it dependent on "priority of place," a principle which is not recognised as valid by a majority of botanists.

As regards species which are united there is some small logical basis for "priority of place": as a rule a species adequately known to the author will precede one which is imperfectly known. But as regards genera the case is different: they are commonly arranged according to some system of classification: and "priority of place" applied to the Species Plantarum simply means that a generic name in Pentandria, for example, has precedence over one in Decandria, whatever the arguments in favour of the latter.

In view of these considerations it is to be hoped that the question of "priority of place" may be reconsidered by the American Permanent Committee on Nomenclature.

On the other hand, Article 36 of the International Rules prescribing a Latin diagnosis for new groups might be reconsidered at the next International Congress. The way would then be prepared for a world-wide agreement on nomenclature.

SUMMARY.

1. The history of the name *Alsine* and its application to *Stellaria*, *Spergularia* and *Minuartia* has been traced.

2. The type of *Alsine*, Linn. (1753) is *A. media*, Linn.

3. *Alsine*, Linn., thus becomes synonymous with *Stellaria*, Linn. The latter name should be adopted under the International Rules. Under the American Code, however, the former name is adopted in accordance with the principle of "priority of place," in spite of six strong arguments in favour of *Stellaria*. This suggests that "priority of place" as regards genera should be abandoned, as leading to undesirable results.

4. *Alsine*, Linn. emend. Gaertn. (1791) should be replaced by *Minuartia*, Linn. (1753).

5. *Alsine*, Linn. emend. Reichb. (1832) should be replaced by *Spergularia*, J. et C. Presl (a nomen conservandum under the International Rules).

6. The name *Alsine* thus disappears altogether. This is a distinct advantage, as it has been applied to three different genera and is now quite ambiguous.

* When two or three groups of the same nature are united the name of the oldest is retained. If the names are of the same date the author chooses, and his choice cannot be modified by subsequent authors.

† Of names published in the same work and at the same time, those having precedence of position are to be regarded as having priority. Examples—*Alsine*, L. Sp. Pl. 272, is to be regarded as having priority over *Stellaria*, L. Sp. Pl. 421.

LI.—MISCELLANEOUS NOTE.

JOHN GILBERT BAKER.—By the death of Dr. J. G. Baker, F.R.S., on August 16th, 1920, Kew mourns the loss of one who for nearly 33 years gave of his best to the promotion and encouragement of the botanical work of the Royal Botanic Gardens.

Born on January 13th, 1834, at Guisboro', Yorkshire, he early devoted himself to botanical studies, and on April 1st, 1866, was appointed Assistant to the Librarian at Kew. In 1884 he was promoted to the position of Principal Assistant in the Herbarium and Library, and in 1890 succeeded to the office of Keeper of the Herbarium and Library on the retirement of the late Prof. D. Oliver. He retired from this office on January 12th, 1899, after having completed 32 years and 10 months of devoted and self-sacrificing public service.

His contributions to botanical science were numerous and valuable, but it is rather as the kindly, helpful and appreciative friend that his memory lives with us a treasured possession. Combined with the charm of his character, his keen sense of honour and love of beauty in poetry, art and nature will long be remembered.

He was an able teacher, and his lectures to the young gardeners at Kew were a source of delight to himself and a keen stimulus to his classes of students.

Sir William Thiselton-Dyer, in a letter to a friend after his death, writes:—"I always felt for him an affectionate regard. He was helpful to me in my early years, and a faithful support to me at Kew. He was one of the best of men. In his serene disposition he was at peace with God and man. His life was one of cheerful devotion to useful and conscientious work, and in it he leaves behind him a worthy monument. To those who knew him his memory will always be fragrant."

Dr. Baker's contributions to botanical literature were very numerous. About 400 papers appear under his name in the Royal Society's Catalogue of Scientific Papers. This catalogue and the lists of publications by the members of the Kew staff, printed in the *Kew Bulletin*, 1897, pp. 1-84, 238-240, and 1907, Appendix V., form an almost complete bibliography of his botanical work. He assisted Miss Willmott in her monograph of *Rosa* (1910-14), being "of especial service in drawing up the specific characters." The following are additions to the lists mentioned above:—

Description of the new species and principal varieties of Lily discovered since the publication of the monograph of Elwes (1880). (*Journ. R. Hort. Soc.* xxvi. pp. 335-345, with figs. 175-179; 1901.)

Biographical notes on the early botanists of Northumberland and Durham. (*Nat. Hist. Trans. Northumberland*, Durh., etc., xiv. pp. 69-86; 1902.)

[Biographical memoir of A. W. Bennett.] (*Journ. R. Microsc. Soc.* 1902, pp. 155-157, with portrait.)

Fritillaria askhabadensis. (*Gard. Chron.* 1902, xxxi. pp. 237-238, with fig.)

Lycoris Sprengeri, Comes. (Gard. Chron. 1902, xxxii. p. 469, with plate.)

François Crépin [obituary notice]. (Proc. Linn. Soc. cxv. pp. 28-30; 1903.)

Beiträge zur Kenntnis der afrikanischen Flora, herausg. von Hans Schinz; Liliaceae, Amaryllidaceae, Velloziaceae. (Bull. Herb. Boiss. 2e sér. iii. pp. 663-668; 1903.)

The genus *Albuca* in the Herbarium of the Albany Museum, Grahamstown. (Rec. Albany Mus., i. pp. 89-94; 1904.)

A revised classification of Roses, 1905. (Journ. Linn. Soc. xxxvii. pp. 70-79; 1905.)

North Yorkshire: studies of its botany, geology, climate and physical geography. Ed. 2, pp. xviii. + 671 and 3 maps. London, 1906. (Trans. Yorks. Bot. Union; Bot. Ser., vol. iii.)

Raspberries and brambles. (Gard. Chron. 1907, xli. pp. 33-34.)

Botany [of Yorkshire] (Victoria History of the County of York, pp. 111-172, with map. London, 1907.)

Euphrasias of North-East Yorkshire. (Naturalist, 1909, p. 79.)

Thymus ovatus in North Yorkshire. (Naturalist, 1909, p. 371.)

Thiselton-Dyer, Flora of Tropical Africa, vol. vi. Sect. 1. Nyctagineae, Illecebraceae, Phytolaccaceae, Polygonaceae, Podostemaceae, Cytinaceae, Piperaceae and Monimiaceae, with additions by C. H. Wright (pp. 1-14, 94-134, 143-1556, 167-171; 1909).

Amarantaceae and Chenopodiaceae, with C. B. Clarke (pp. 14-94; 1909).

Aristolochiaceae, with C. H. Wright (pp. 134-143; 1909).

Proteaceae, with C. H. Wright (pp. 193-211; 1910).

Santalaceae, with A. W. Hill (pp. 411-434; 1911).

Freesia Armstrongii. (Gard. Chron. 1910, xlvii. p. 169.)

New plant localities in North-East Yorkshire. (Naturalist, 1911, p. 309.)

The botany of Burnham Beeches. (Journ. Bot. 1917, pp. 276-278.)

William Foggitt. [Obituary notice.] (Journ. Bot. 1917, p. 200.)

On botany and physical geography of the Holy Land. (Gard. Chron. 1917, lxii. pp. 245-247, 260, with figs. 93-96.)

Matthew B. Slater. [Obituary notice.] (Journ. Bot. 1918, p. 191.)

He was buried on August 19th in the Friends' Burial Ground at Isleworth, and the staff at Kew—many of whom were present—sent as a tribute of their affection a wreath composed entirely of monocotyledonous flowers which had formed some of the principal subjects of Dr. Baker's botanical researches.